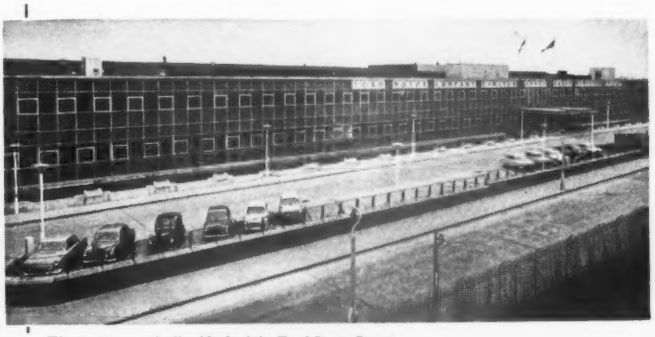
THIRD SERIES VOL 66 NUMBER 3 JANUARY 1959

66 PORTLAND PLACE LONDON W1 · THREE SHILLINGS AND SIXPENCE

Rural Housing, Gillingham, Norfolk. Architects: Tayler and Green [FF]

The newly completed Ford Parts Depot at Aveley, Essex, is designed in the most modern idiom of industrial architecture. It is therefore not surprising to find that the office block, including the canteen (illustrated above), is heated throughout by Crane Skirting Heating. This modern system uses heating panels in place of the conventional skirting to distribute warmth evenly at all levels without taking valuable floor space and without creating local 'hot spots'. The panels seen here are the 9-inch Type RC (Radiant-Convector). There is also **Type R (Radiant) which, in addition to the 6-inch size, has lately been made available in the 9-inch size for situations requiring additional heating surface.** The panels are in 2-ft. and 1-ft. lengths and are strongly made in cast iron for resistance to damage. Skirting Heating is the perfect modern method of space heating.

Once again, skirting heating by Crane



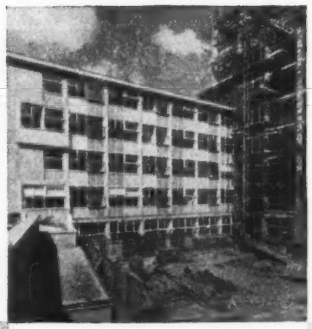
The frontage and office block of the Ford Parts Depot.
ARCHITECTS AND CONSULTING ENGINEERS: E. R. Collister and Associates, London, S.W.1
HEATING ENGINEERS: Brightside Heating & Engineering Co. Ltd., London, S.W.1

CRANE HEATING EQUIPMENT

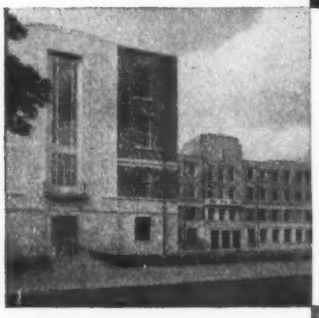
B26

CRANE LTD., 15-16 RED LION COURT, FLEET STREET, LONDON, E.C.4. Works: IPSWICH
Branches: Birmingham, Brentford, Bristol, Glasgow, London, Manchester

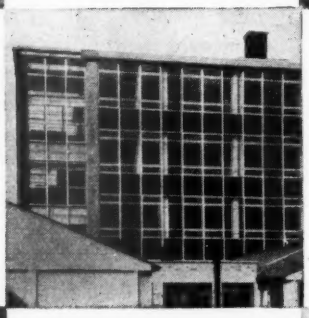
ROYAL TECHNICAL COLLEGE
SALFORD
Architect:
G. Noel Hill



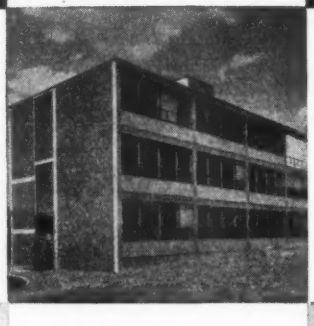
HATFIELD
SECONDARY TECHNICAL SCHOOL
Architects:
Easton & Robertson



READING TECHNICAL COLLEGE
Architects:
Lanchester & Lodge

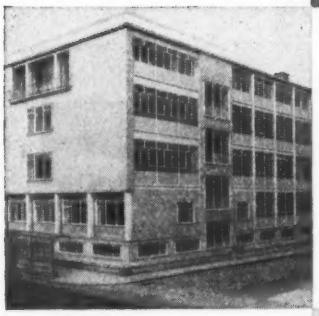


WORKINGTON COLLEGE
OF FURTHER EDUCATION
Architect:
John H. Haughan

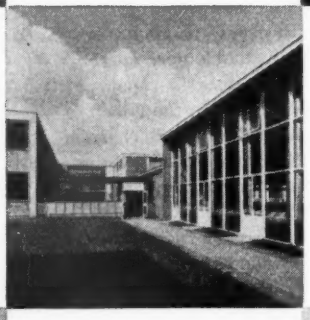


POOLE COLLEGE
OF FURTHER EDUCATION
Architects:
Elder & de Pierro

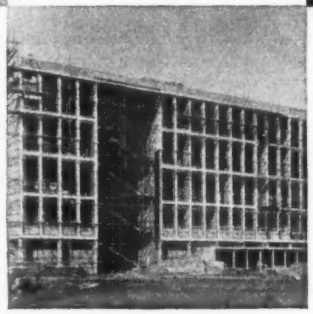
THURROCK TECHNICAL COLLEGE
Architect:
H. Conolly



KEIGHLEY TECHNICAL COLLEGE
YORKS
Architect:
A. W. Glover

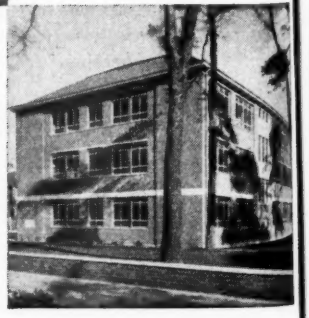


BASILDON
FRYERNS COUNTY SECONDARY
TECHNICAL SCHOOL
Architect:
Denis Clarke Hall



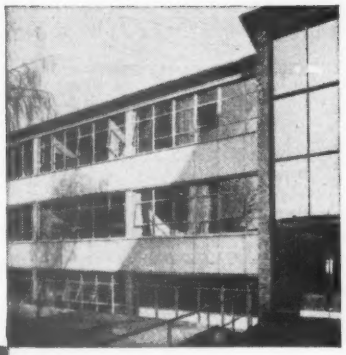
OXFORD
COLLEGE OF TECHNOLOGY,
ART & COMMERCE
Architect:
E. G. Chandler

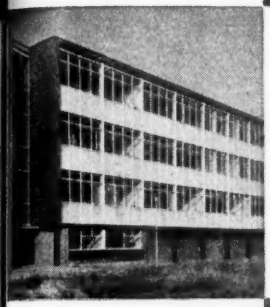
BOURNEMOUTH
MUNICIPAL COLLEGE
Architect:
John Burton



DUNCAN OF JORDANSTONE
COLLEGE OF ART
DUNDEE
Architect:
James Wallace

CAMBRIDGESHIRE
TECHNICAL COLLEGE
& SCHOOL OF ART
Architect:
Alister MacDonald

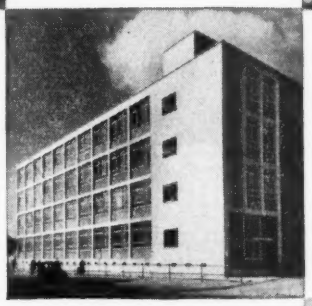




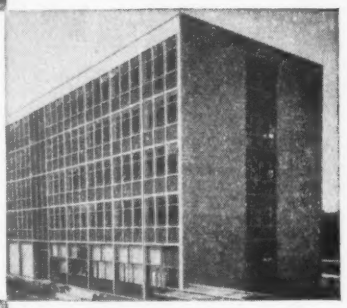
LONGLANDS COUNTY COLLEGE
MIDDLESBROUGH
Architect:
K. J. Caton

N. BEDS. COLLEGE
OF FURTHER EDUCATION
BEDFORD
Architect:
S. Vincent Goodman

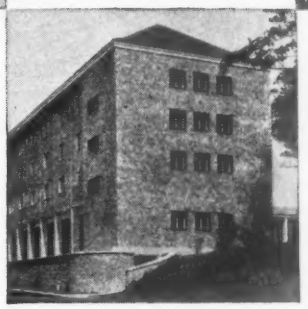
QUEEN MARY COLLEGE
MILE END ROAD
Architects:
Playne & Lacey



N.E. ESSEX
TECHNICAL COLLEGE
COLCHESTER
Architect:
H. Conolly



Modern Technical Colleges build with . . .

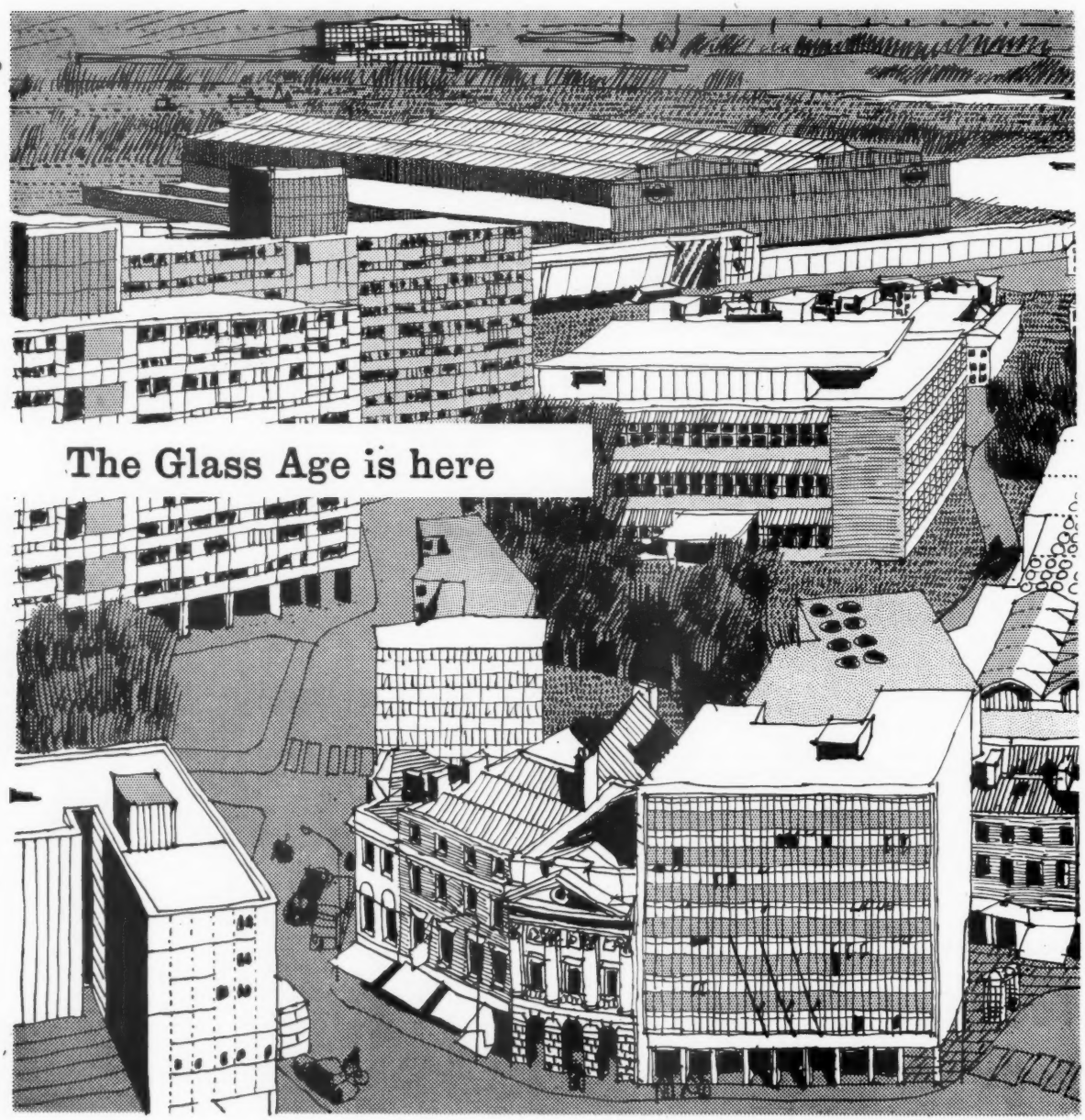


R.N. ENGINEERING COLLEGE
PLYMOUTH
Architects Department, M.O.W.

CRITTALL WINDOWS

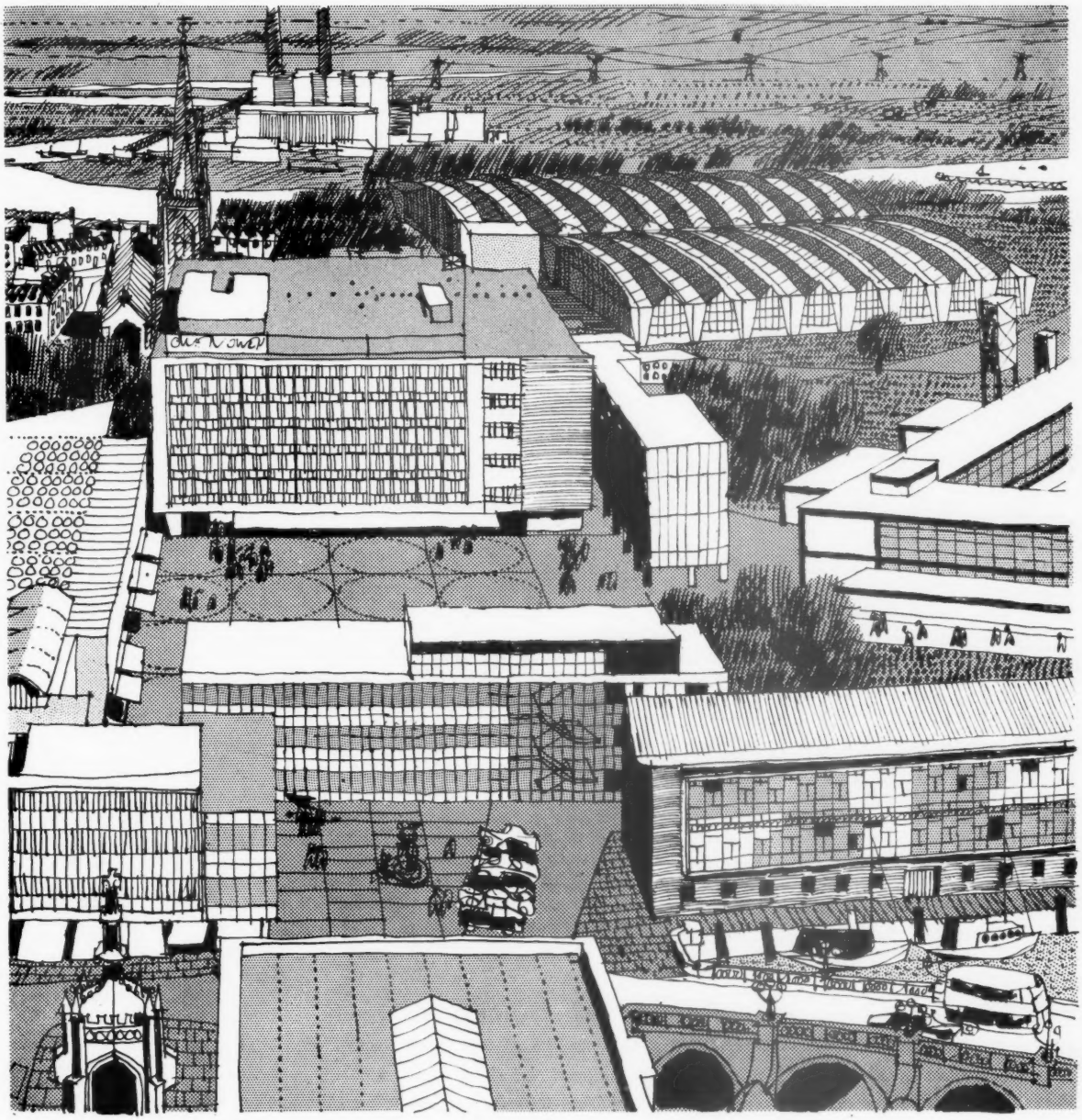
THE CRITTALL MANUFACTURING CO. LTD · BRAINTREE · ESSEX · BRANCHES & DEPOTS THROUGHOUT THE COUNTRY

rnw/96

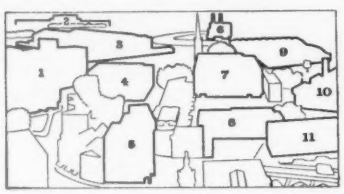


City of Britain

The components of this city already exist. The eleven contemporary buildings assembled here —drawn by Gordon Cullen—adorn different localities. They reveal the graceful and elegant shape of things as they are and illustrate the part glass plays in the technique of the new Western Architecture which has arisen from the modern movement in design. The Glass Age is here.



1 *Picton Street Housing L.C.C. by the Architect to the London County Council.*
2 *Gatwick Airport. Architects: Yorke, Rosenberg & Mardall.*
3 *Aldenham L.T. Bus Depot. Architect: Thomas R. Bilbow,* F.R.I.B.A.
4 *McAlpine Offices, Hemel Hempstead. Architect: M. H. J. Bebb,* L.R.I.B.A., A.I.A.A.
5 *British India Steam Navigation Co. Ltd., Aldgate, E.C.3. Architect: Theo Birks,* F.R.I.B.A.
6 *Stella North Power Station, Central Electricity Generating Bd. Architects: L. J. Couves & Ptrs.*
7 *Owen Owen's Store, Coventry. Architects: Rolf Hellberg & Maurice Harris.*
8 *Bowater Research Development Co. Ltd., North Fleet Offices. Architects: Farmer & Dark.*
9 *Matthews & Mumby Works, Denton. Architect: Haydn W. Smith,* A.R.I.B.A.
10 *Hunstanton School. Architects: Alison & Peter Smithson,* A/A.R.I.B.A.
11 *Mitchell Engineering Buildings, Peterborough. Architect: Howard V. Lobb & Partners.*



It used to be a slow job...

. . . . tiling, I mean . . . . . hacking the wall . . . . . mixing cement . . . . carrying and slapping it about . . . . . soaking tiles and so on . . . . . but with

RICHAFIX

THE BRITISH TILE ADHESIVE

there's no hacking, no cement, no soaking . . . it's miles **QUICKER** *(and cleaner) . . . . and it's* **SAFER** *. . . you are sure of* **PERMANENT ADHESION** *. . . . . no risk of tiles coming adrift after a year or two . . . . . been proved now on about 1,000,000 sq. yds. of tiles fixed. Interiors, exteriors, under water, under high temperature . . . . . any kind of flat wall—cement, plaster, timber, hardboard, even old glazed tiles . . . . .* ***If you're not using Richafix hadn't you better enquire about it?*** *. . . . . Ask for their Booklet R.F.3 . . . . . ask about their test figures. In fact, you can write to Richards about any tile fixing problem.*

RICHARDS TILES LTD

HEAD OFFICE & FACTORIES: TUNSTALL, STOKE-ON-TRENT : LONDON OFFICE & SHOWROOMS:
GRAND BUILDINGS
TRAFALGAR SQUARE, W.C.2
(WHITEHALL 2488 & 8063)

(S-O-T.87215)

Adjustable school desk, covered with Perstorp in a range of colours, made by Educational Aids (London) Ltd. In stout steel and wood, these desks, with two side book holders ensure correct working postures, take up less space, effect sound economies.

DISTRIBUTORS: **London & Home Counties** C. F. Anderson & Son Ltd. *Harris Wharf, Graham Street, London, N.1.* Geo. E. Gray Ltd. *Joinant House, Eastern Avenue, Ilford, Essex.* **West Country & Wales** Channel Plastics Ltd. *Flowers Hill, Brislington, Bristol 4.* **Midlands & Area** Rudders & Paynes Ltd. *Chester Street, Aston, Birmingham 6.* **N.E. England** A. J. Wares Ltd. *King Street, South Shields.* **N.W. England** Heaton Tabb & Co. Ltd. *55 Bold Street, Liverpool 1.* **Scotland** Nevill Long & Co. (Boards) Ltd., *Rivaldsgreen, Linlithgow, West Lothian.*

With **Perstorp,** a very real and successful attempt has been made to produce colours and finishes to gladden the hearts and sensibilities of modern designers and architects—balanced, assured, clean . . . not glossy yet not matt. This can be attributed to the fact that Perstorp, the *original* plastic laminate, is produced in Sweden, and the Swedes are nothing if not contemporary.

So when you require an extremely high-quality plastic laminate, suitable for both horizontal and vertical surfaces . . . simple to cut, shape and apply, and, once in place, there for ever . . . specify Perstorp. It is immune to ill-treatment, heat and grease and the least expensive of the better plastic laminates.

Swedish **PERSTORP**

-and now the **NEW**

HIFLO-SPRAY TAPS

FOR MODERN HYGIENE
Comfort plus economy

THESE latest additions to the popular HIFLO range are designed on modern BBC lines and intended primarily for use in Offices, Schools and Factories.

HIFLO SPRAY BIBCOCK
No. S64 with vari-length nozzle

HIFLO SPRAY BIBCOCK
No. S65 with inclined head

HIFLO SPRAY PILLAR TAP
No. S145 with swivel nozzle

★ *ECONOMICAL IN FUEL AND WATER*

★ *HYGIENIC*
—NO SCUM
—NO PLUG

Taps provided with PRECONTROL restrict the flow to 3½ pints a minute. Water emanates from thermostatically controlled storage tanks.

Spray taps deliver a soft spray for washing under running water. The basin remains clean and neither overflow nor plug and chain are required.

BBC REGD. *Quality Fittings*

Further particulars, dimension and technical details gladly sent on request.

BARKING BRASSWARE CO. LIMITED

RIVER ROAD • BARKING • ESSEX

Structural steel and Banister, Walton are synonymous terms. The firm fabricates and erects steel frames for buildings. Speed of construction is ensured by the immediate availability of steel stocks.

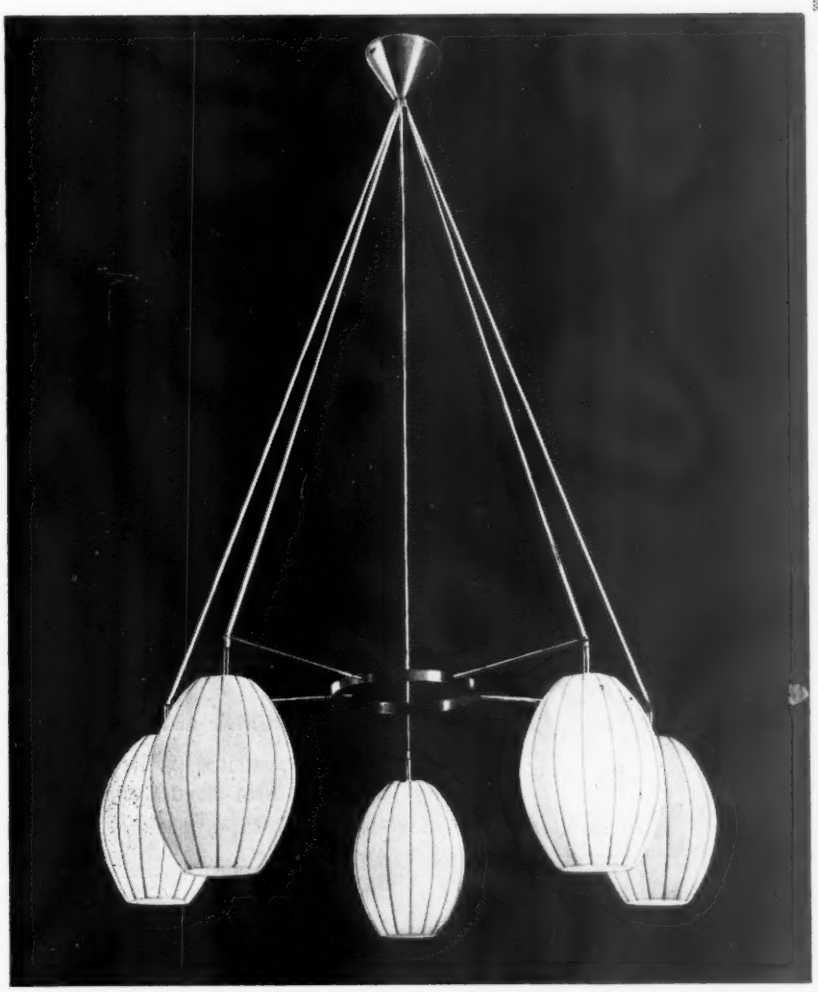
Banister, Walton build in steel

A recently installed automatic fabricating plant enables us to quote cheaper prices and to give even quicker deliveries.

BANISTER, WALTON & CO. LTD.
STRUCTURAL STEEL ENGINEERS & STOCKHOLDERS
MANCHESTER • LONDON • BIRMINGHAM

MGN 3361

Venus Fittings by FALKS



Designed by
J. M. Barnicot, M.S.I.A.

From the Falks range of Contemporary Lighting Fittings

Satin white opal glassware in two sizes with fired black lines suspended by 3-core white circular flex with polished brass cover plate and arms and steel bronze centre ring. This range comprises 9 different fittings : A 7-lt., 5-lt., 3-lt. and 1-lt. pendant all intended for use with either 100/150-watt or 75-watt lamps and also as a 75-watt 1-lt. wall bracket.

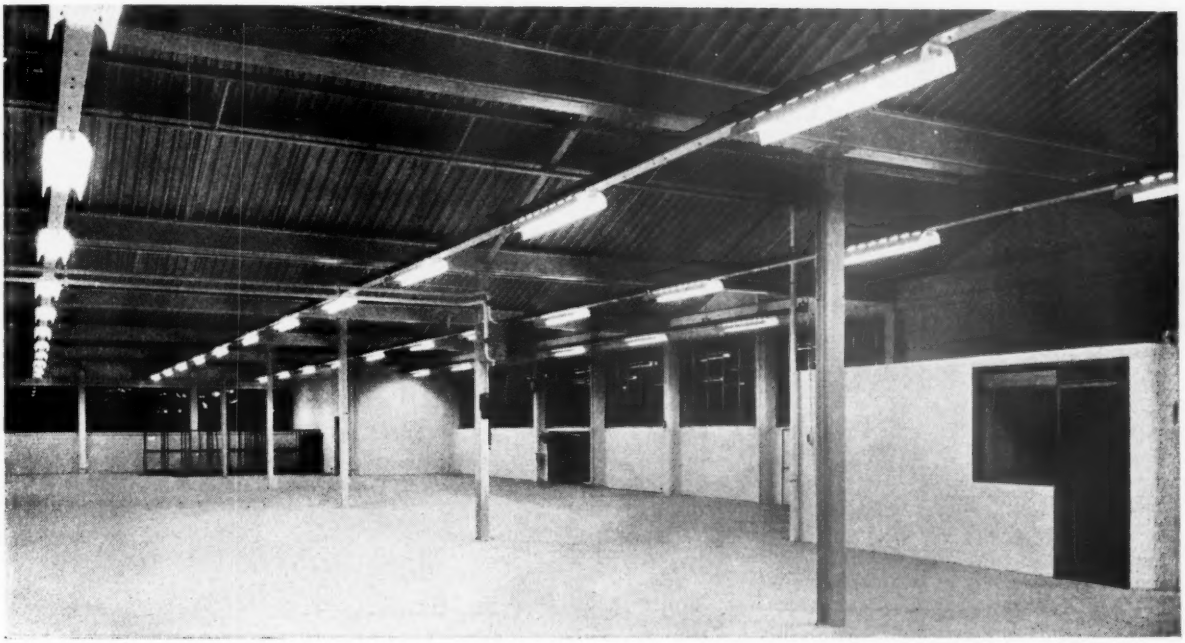
FALKS
FALK, STADELMANN & CO. LTD

91 FARRINGDON ROAD, LONDON, E.C.1. HOL. 7654

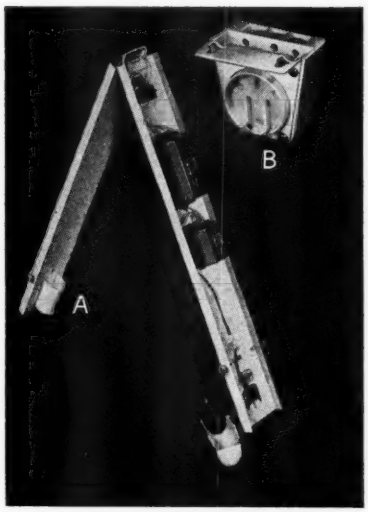
London Showrooms: 20/22 Mount St., Park Lane, W.1. MAY. 5671/2

AP52

atlas leads in lighting / **suggestions for large industrial premises**

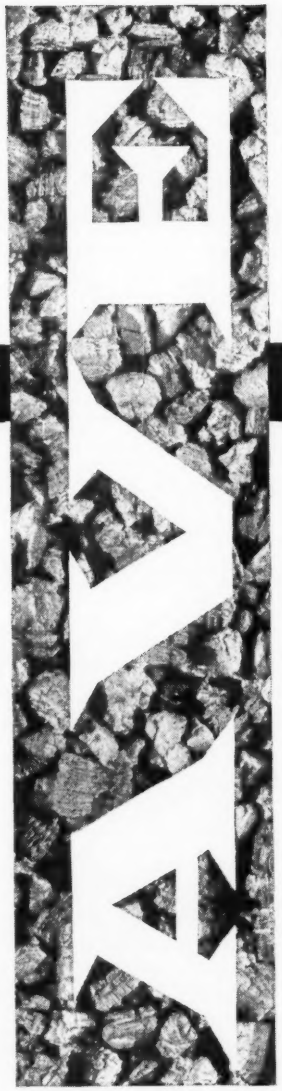


atlas trunking



Atlas Industrial Trunking provides an economical and completely flexible lighting system which is adaptable to any factory layout. Highly efficient 8 ft. or 5 ft. fluorescent fittings can be spaced at intervals or in continuous runs, as required, and once installed can be changed around without difficulty to meet changes of factory layout. Cables for lighting and power or communication services are carried within the trunking and can be easily tapped. Among other unique features which make Atlas trunking economical to install and maintain are the hinged gear trays (a) which can be unhooked and removed for servicing; and (b) Atlas Atlantic spring-loaded bi-pin lampholders which enable one man to relamp even 8 ft. fittings. Atlas Lighting Engineers are available for consultation at any time, and will gladly call by appointment.

ATLAS LIGHTING LIMITED A subsidiary company of Thorn Electrical Industries Limited 233 Shaftesbury Avenue London W.C.2.



results have proved that

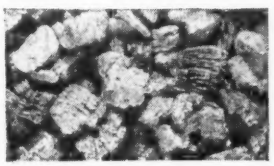
VERMICULITE

provides better thermal insulation efficiency—for no extra cost—than any other material

Roof screeds · Floor screeds · Loose fill · Plaster

Specify one of these branded A.V.E. *vermiculites.*

ASSOCIATION OF AVE VERMICULITE EXFOLIATORS



Full technical information from

J. M. & J. Bartlett Ltd
Lombard House
Warwick Street
NEWCASTLE UPON TYNE 2

Cape Building Products Ltd
114–116 Park Street
LONDON W1
Cowley Bridge Works
UXBRIDGE Middlesex

A. R. & W. Cleaver Ltd
Advance Works
Wood Street
NORTHAMPTON

Dupre Vermiculite Ltd
39–41 New Broad Street
LONDON EC2
23b Broadwater Road
WELWYN GARDEN CITY Herts

The Iron & Marble Company Ltd
33–35 Victoria Street
BRISTOL

William Kenyon & Sons (MetaMica) Ltd
DUKINFIELD Cheshire
140 West George Street GLASGOW C2
50 Bloomsbury Street
Bedford Square LONDON WC1

L. Slack & Son Ltd
Courthouse Street
Pontypridd
SOUTH WALES

Issued in the interest of better insulation by the ***Association of Vermiculite Exfoliators,*** *51-55 Strand, London W.C.2*

A NEW HEAVY DUTY RED FLOOR QUARRY FOR INDUSTRIAL USE

the 6″ x 6″ x 1⅛″

WHEATLY triton

The solidity and density of this quarry makes it suitable for almost all kinds of industrial flooring

In addition to this size the following sizes are produced:
4½″ x 4½″ x 1¼″, 9″ x 4½″ x 1¼″ and 8″ x 4″ x 1⅛″, 8″ x 8″ x 1⅛″

A Heavy Duty Blue is available in limited quantities in:
9″ x 9″ x 1¼″ and 9″ x 4½″ x 1¼″

and a Russet Brown in:
9″ x 4½″ x 1¼″, 9″ x 9″ x 1¼″ and 8″ x 4″ x 1⅛″, 8″ x 8″ x 1⅛″

WHEATLY
triton

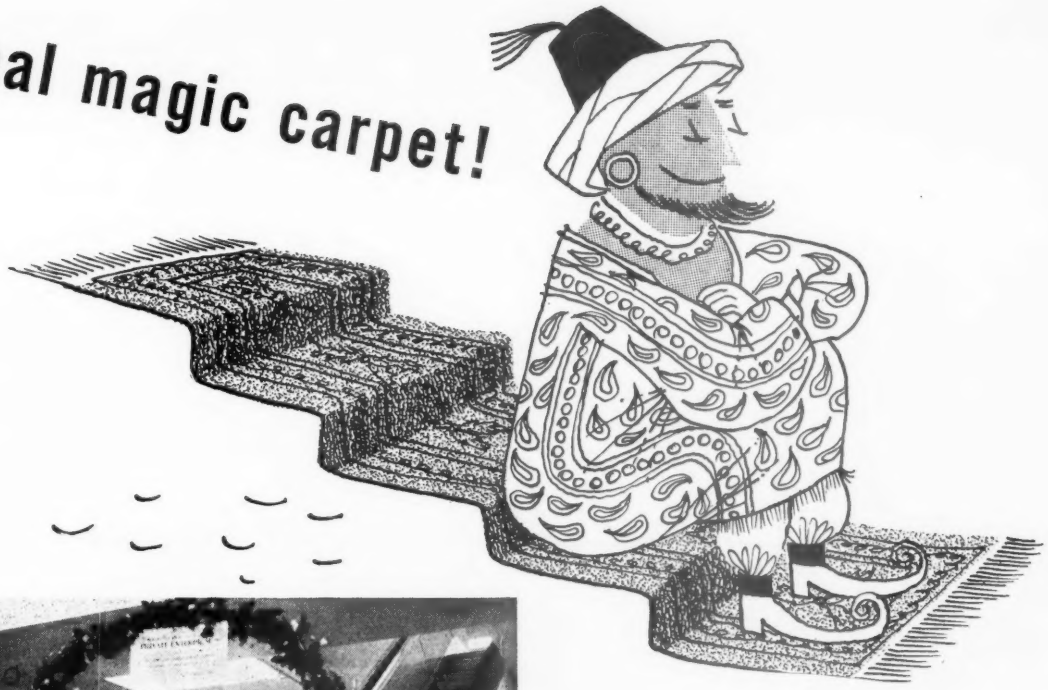
A new edition of the WHEATLY triton Floor Quarries List is now available on request.

WHEATLY & COMPANY LIMITED

SPRINGFIELD TILERIES · TRENT VALE · STOKE-ON-TRENT · *Telephone:* NEWCASTLE *(Staffs.)* 66252 · *Telegrams:* WHEATLY, TRENTVALE

WH.97

a real magic carpet!



Only a child's description but how well it fits the modern escalator which with its invisible mechanism can carry up to 8,000 persons per hour from one enchanting scene to another, quietly, safely and smoothly!

Shown here is a "U" type installed for Messrs. Bearmans of Leytonstone. With a capacity of 7,000 persons per hour it has deckings and mouldings in silver-satin-finished aluminium alloy and inner panels of dimpled aluminium sheet, gold anodised.

J. & E. HALL LIMITED

ESCALATOR, LIFT & REFRIGERATION ENGINEERS

DARTFORD · KENT Tel: DARTFORD 3456

LONDON OFFICE: 10 ST. SWITHINS LANE, EC4 Mansion 9811

BRANCHES IN MANCHESTER, NEWCASTLE, BIRMINGHAM, BRISTOL AND GLASGOW

STRAMIT

CLASS 1 SLABS

fully satisfy the requirements of the * *Act regarding Thermal Insulation and Resistance to Spread of Flame!*

* THE THERMAL INSULATION (INDUSTRIAL BUILDINGS) ACT, 1957

Here's a *structural* insulating material with a Class I rating for spread of flame! When Stramit Class I slabs are used as roof-decking under felt, they have a U-value of *0.23* and so easily satisfy the requirements of the new Act (which stipulates a U-value not greater than 0.3). And, of course, when Stramit is weathered with corrugated asbestos its U-value improves still further.

The essential Class I rating for spread of flame is achieved without further treatment, thanks to a special asbestos facing on the slabs. Stramit Class I slabs are strong, rigid and durable, and cost only 1/3d. per sq. ft.

STOCK SIZES:
2 in. thick x 4 ft. wide x 6, 8, 9, 10 and 12 ft. long.
Special sizes made to order.

ONLY 1/3D PER SQ.FT.

To: STRAMIT BOARDS LTD., COWLEY PEACHEY, UXBRIDGE, MIDDX : : Telephone: West Drayton 3751

Please send me full details of Stramit Class I building slabs.

NAME.....

ADDRESS .....

.....

For the attention of..... RIBA. J

New research building Longbenton, for Thomas Hedley & Co. Ltd. Newcastle-upon-Tyne

Architect: Derek R. L. Wallace, M.B.E., D.F.C., M.Inst.R.A., F. Boreham, Son & Wallace, Registered Architects, 4a, Bloomsbury Square, LONDON, W.C.1.

General Contractors: John Laing & Son Ltd.

Consulting Engineers: Bylander & Waddell, 26 Old Burlington Street, LONDON, W.1.

'PUDLO' Brand cement waterproofer was specified in the retaining walls and floor of the Boiler Room in the new Research Building at Longbenton, for Messrs. Thomas Hedley & Co., Limited, of Newcastle-upon-Tyne, the famous makers of the well-known products Tide, Daz, Fairy Soap, Gleem, etc. The composition of waterproofed cement was as follows:– Vibrated Reinforced Concrete composed of 1 cwt. cement to 2½ cubic feet of fine aggregate and 5 cubic feet of coarse aggregate, maximum nominal size ¾". 'PUDLO' Brand waterproofer was included at the rate of 5 lbs. to 1 cwt. of cement.

'PUDLO'

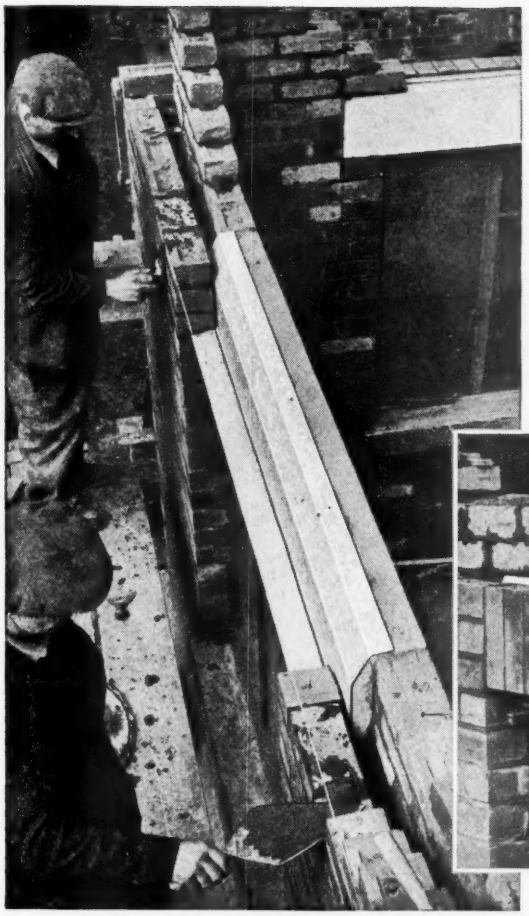
CEMENT WATERPROOFING POWDER

THE RANGE OF 'PUDLO' PRODUCTS INCLUDES:–
CEMENT WATERPROOFING POWDER
WATERPROOF CEMENT PAINTS
CEMENT PAINT PRIMER
EXTERNAL WATER REPELLENT
CEMENT BONDER
FROST PROTECTOR/RAPID HARDENER
PLASTER BONDER
MORTAR PLASTICISER
LIQUID CEMENT ADDITIVE
CEMENT HARDENER/DUST PROOFER
"FEUSOL" FIRE CEMENT

The word 'PUDLO' is the registered Trade Brand of Kerner-Greenwood & Co. Ltd., by whom all articles bearing that Brand are manufactured. Sole Proprietors and Manufacturers:

KERNER-GREENWOOD & COMPANY LTD • KING'S LYNN • NORFOLK

Telephone: KING'S LYNN 2293

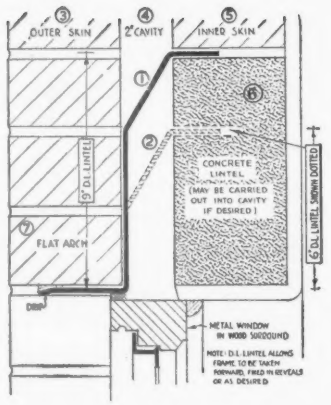


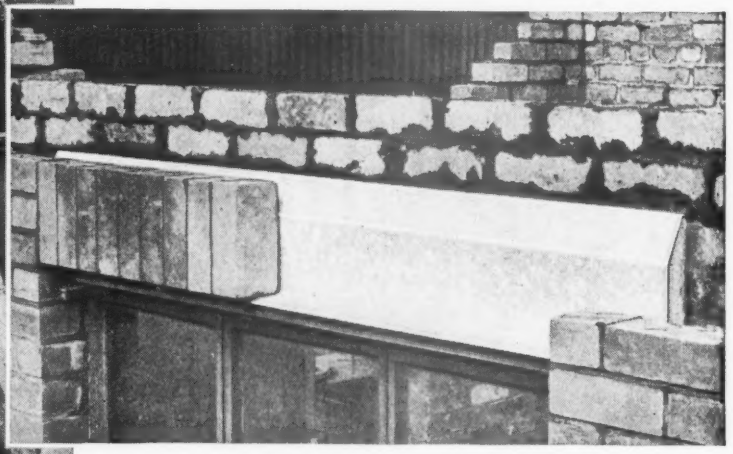
SECTION SHOWING TYPICAL DETAIL

(1) 9 in. Dorman Long Lintel
(2) 6 in. Dorman Long Lintel (shown dotted)
(3) Outer skin
(4) Cavity
(5) Inner skin
(6) Inside concrete lintel (carried out into cavity if so desired)
(7) Flat arch

The wide 'turn-in' of the Dorman Long Lintel allows the cavity to be varied from 2 in. to 2¾ in. in width.

Patent No. 694214





THE DORMAN LONG LINTEL

Combined Angle Arch Support & Dampcourse Tray

IN HOT-DIP GALVANIZED STEEL, FOR USE AT THE HEADS OF OPENINGS IN EXTERNAL CAVITY WALLS

Comes on site to required length ready to fix.
Large saving in site labour costs.
Cannot be damaged in cavity cleaning.

THE DORMAN LONG LINTEL has only to be placed into position over the head of the opening, and without delay the work carries on.

Prices and details from :
DORMAN LONG *(Steel)* LTD., Sheet Dept., Middlesbrough or from district offices at London, Birmingham, Manchester, Newcastle, Belfast, Glasgow.

DORMAN LONG

Unatap

One tap instead of two
giving both hot and cold
Wash in the running spray
halves the hot water

Unatap was designed by our Technical Staff in collaboration with the Building Research Station. More about it from Walker, Crosweller & Co. Ltd., in pamphlet UB/135

WALKER, CROSWELLER & CO. LTD., CHELTENHAM

Telephone: CHELTENHAM 56317

The New American Embassy Office Building, London.

Architects:
Eero Saarinen and Associates
in association with
Yorke, Rosenberg & Mardall.
Consulting Engineers:
Structural—Felix J. Samuely & Partners.
Mechanical—A. F. Myers & Partners.
Main Contractors:
Pauling & Co. Ltd.
Reinforced Concrete Superstructure
and Foundation Sub-Contractors:
Wates Limited.

● *Air Conditioning, Heating and Sprinkler Installations by*

MATTHEW HALL & CO. LTD.

THE
MATTHEW HALL
GROUP OF COMPANIES

EST. 1848

MATTHEW HALL

AIR CONDITIONING · HEATING · ELECTRICITY · SANITATION · SPRINKLERS & FIRE PROTECTION

MATTHEW HALL HOUSE, DORSET SQUARE, LONDON, N.W.1.

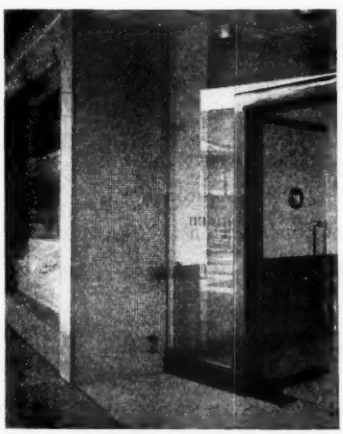
Glasgow Manchester Bristol Belfast Johannesburg Germiston Durban
Cape Town Welkom Bulawayo Salisbury (Central Africa) Ndola West Indies

The functional beauty of mosaic . . .

The Main Store
Floors and Columns of ¾" x ¾" Light Brown Ceramic Mosaic. Walls tiled with 6" x 6" Cream, Mushroom and Teapot Brown glazed wall tiles, with a frieze of 6" x 3" green tiles.

CARTER MOSAIC AND CARTER TILING ARE EXTENSIVELY USED AT SAINSBURY'S STORE, CRAWLEY NEW TOWN

Architects: Hooper, Belfrage & Gray. Tiling carried out under the direction of Sainsbury's Building Development Department



Left: Part of the Entrance Surrounds
Light Brown Ceramic Mosaic is again used, this time as panelling.

MOSAIC. Even in its simplest form, Mosaic gives a distinctive beauty to large unbroken surfaces such as floors. Ceramic Mosaic is one of four types of Mosaic which are readily available from us. The others are Vitreous Glass Mosaic, Marble Mosaic and Venetian Glass Mosaic. We will gladly offer advice on the suitability of these for any purpose.

Estimates and designs will be supplied free and our design unit under the direction of A. B. Read, R.D.I., A.R.C.A., F.S.I.A., welcomes opportunities for preparing special schemes for architects and designers.

Carter Tiles Limited, Poole, Dorset. Telephone: Poole 125.
Carter & Co. London Ltd., 29 Albert Embankment, S.E.11. Telephone: Reliance 1471.
Manchester Office: 27 Brazennose Street, Manchester 2. Telephone: Blackfriars 2098.
Art Pavements and Decorations Ltd., St. Paul's Crescent, Camden Town, N.W.1. Telephone: Gulliver 2226.
Commercial Marble & Tiles Ltd., Newcastle-upon-Tyne. Telephone: Newcastle 811373.
Carter Tiling Edinburgh, 13 Steads Place, Edinburgh 6. Telephone: Leith 39188.
Associated Company: The Marbolith Flooring Co. Ltd.

Fanned Forced Warm Air Heating

by COKE & GAS

Its advantages include :—

★ Forced warm air heating from a single source without radiators or pipes, a conveniently grouped duct system being incorporated in the design stage of the building.

★ Flexibility—heating readily controlled automatically when wanted and to the desired extent.

★ Costs—can be cheaper than conventional central heating to comparable standard, because of its greater flexibility.

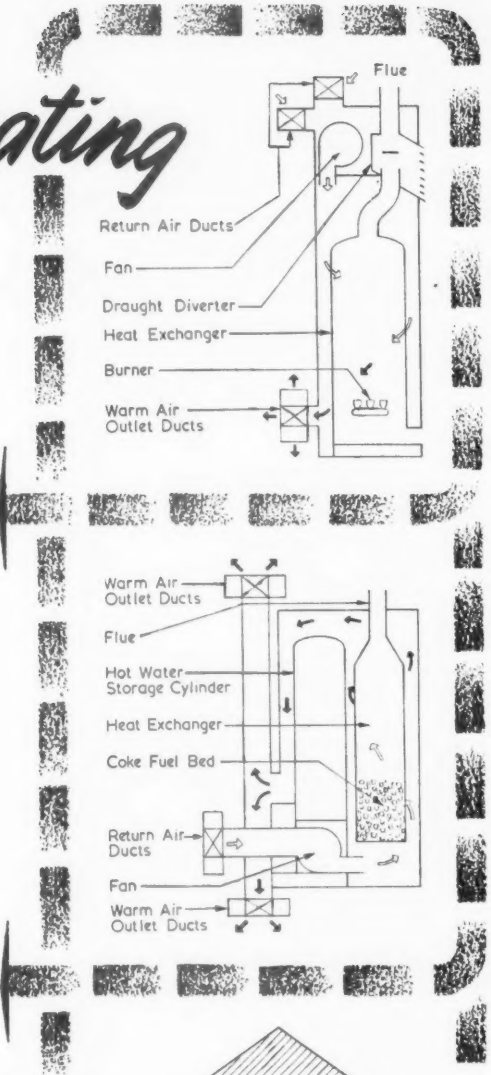
★ Full comfort standard—less draughts, uniform room heating. Cool air in summer.

★ More scope for the Designer—small space requirements of unit meaning greater freedom of planning.

★ Smokeless—whether fuelled by gas or coke.

★ Cleanliness—since the warm air is directed downwards at low level and at sufficient speed, discolouration of decorations is avoided.

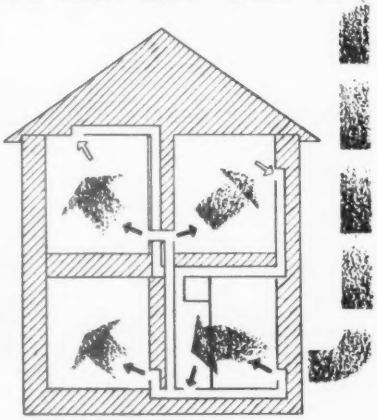
★ Domestic hot water—usually combined in one unit.



Warm Air Appliances

in a wide range of outputs

are available to suit new buildings.



Technical information and advice on all heating problems may be obtained from your Area Gas Board or the GAS COUNCIL, 1 Grosvenor Place, S.W.1.

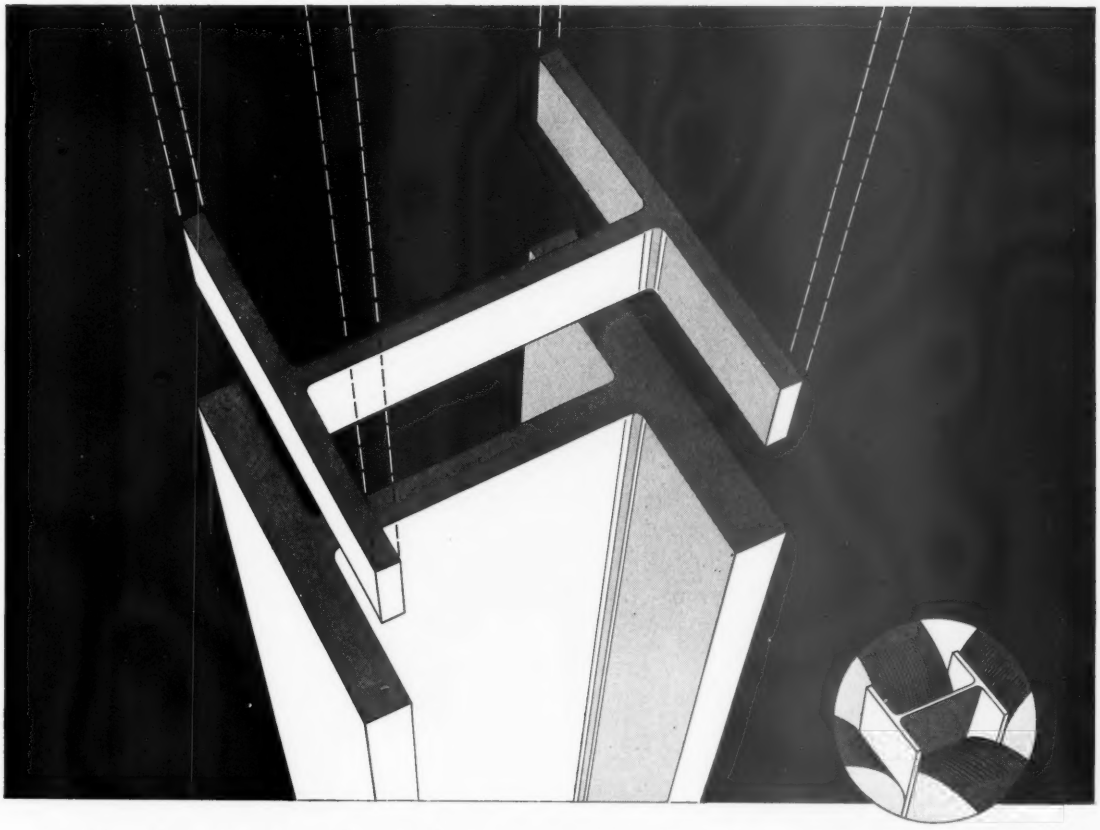


Diagram showing the arrangement of the rolls, which are adjustable to control the flange and web thickness. Other rolls, not shown, size the edges.

Each section best for its purpose

Our new Universal Beam Mill makes available a full range of new and important beams and column sections, some having wide flanges.

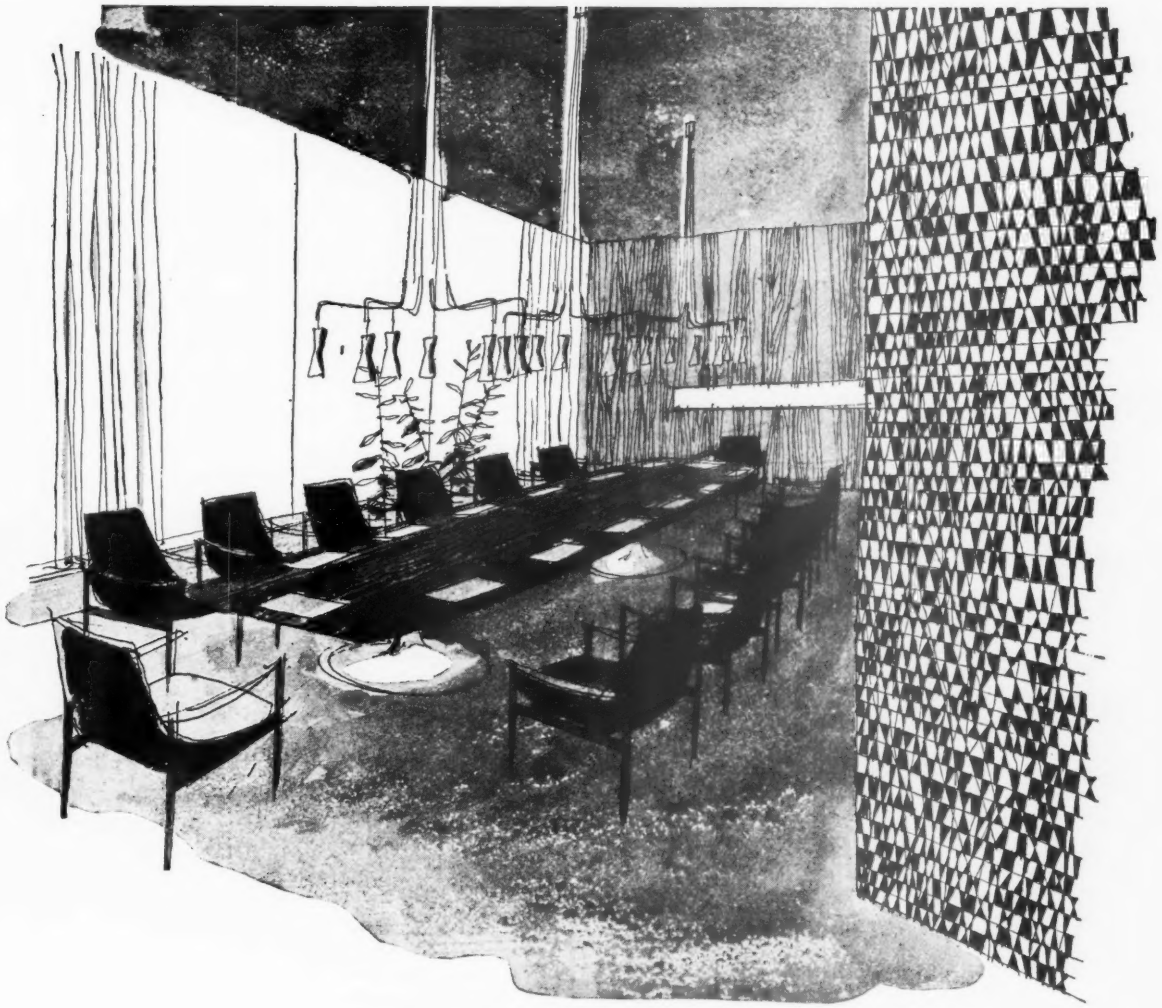
The new mill produces—without changing the rolls—complete 'families' of related sections such as are advantageous for the columns of multi-storey buildings. The illustration shows two of a range of such sections; the flange thickness can be altered as shown by adjustment of the rolls, while the inside surfaces remain practically unaltered.

New large beams are available in different weights.

These new beams and columns are already leading to substantial economic and other advantages.

EARLY DELIVERY OF THE FULL RANGE OF SECTIONS

DORMAN LONG



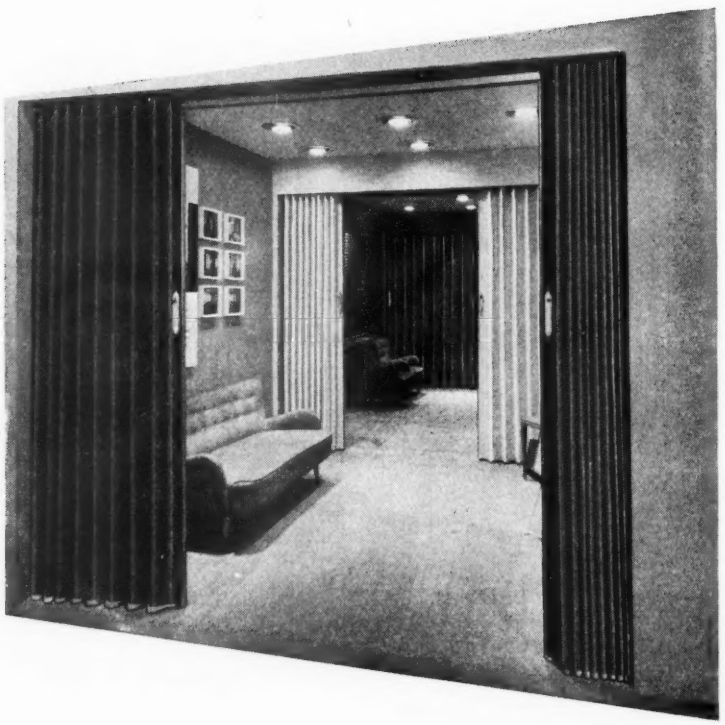
Palladio wallpaper "Kaleidoscope" No. 44310. Drawing by Nigel Walters.
For the second year running a Palladio wallpaper has been chosen as one of the best designs shown during the year at the Design Centre.

A SERVICE FOR ARCHITECTS

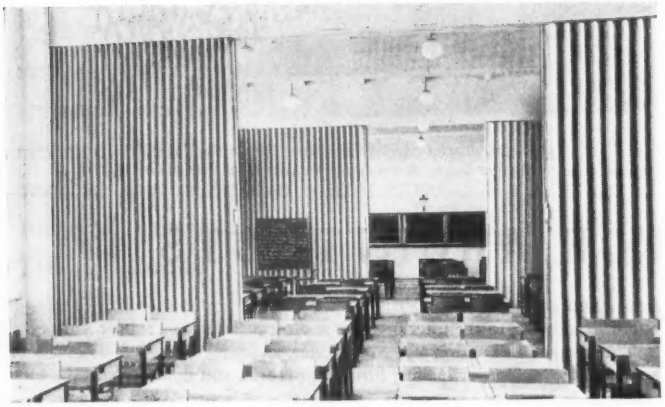
The primary purpose of our ARCHITECTS' DEPARTMENT is to give
advice on the use of wallpaper, but we welcome inquiries relating to the interior scheme of decoration as a whole.
Our products may be seen at the Showrooms in London and Manchester, and
if required we can provide a complete specification incorporating wallpaper, paints, furnishing fabrics and floor coverings.
The Architects' Showroom in London is reserved
exclusively for the use of Architects, Interior Designers and their clients.

WPM

THE ARCHITECTS' DEPARTMENT
THE WALL PAPER MANUFACTURERS LIMITED 19-21 MORTIMER STREET LONDON W1
OR KING'S HOUSE KING STREET WEST MANCHESTER 3



ROOMS WITHIN A ROOM – *The* MODERNFOLD *Way*



Easy room division is of supreme importance in this age when interior space is so costly. Modernfold Expanding Walls and Doors solve this problem and give added grace and elegance to modern décor. MODERNFOLD is the perfect answer for rooms within a room—no floor tracks required—draughtproof—finger touch movement—made to measure for individual specification.

Write for descriptive literature on our full range.

Note—Window décor by SUNAIRE, naturally.

modernfold

expanding walls and doors

HOME FITTINGS (GT. BRITAIN) LTD.

Dept. IBA 1, VICTORIA WORKS, HILL TOP, WEST BROMWICH. Tel.: Wednesbury 0761

IBA/1

Architects: Messrs. Farmer and Dark, F/F.R.I.B.A.

New Central Research Laboratories and Engineering Division for The Bowater Paper Corporation Limited

Part of the extensive developments on the Thames Mill Site at Northfleet, Kent, of The Bowater Paper Corporation Limited, are the Central Research Laboratories and Engineering Division blocks. These have a combined floor space of 55,000 sq. ft. served by a common entrance hall (illustrated). The structures are based on a module of 3 ft. 4 in. in all planes, with a framework of light welded steel and lightweight metal decking roof. Walls are almost entirely of glass with stainless steel trimming, and colour variation is obtained by asbestos panels set behind. Floors are in 2-in. precast concrete and acoustic ceilings accommodate recessed lighting, heating and ventilation grills. The colourful interior decoration combines individuality with breadth of design, while the exterior preserves the unity of the neighbouring production buildings.

THE CUBITT GROUP OF COMPANIES
UNITED KINGDOM AND OVERSEAS

With the experience of the past

CUBITTS

build for the future

HOLLAND & HANNEN AND CUBITTS (GREAT BRITAIN) LTD. · ONE QUEEN ANNE'S GATE · LONDON · SW1

TGA C243

THE JOURNAL OF THE ROYAL INSTITUTE OF BRITISH ARCHITECTS

66 PORTLAND PLACE LONDON W1

Telephone: LANGHAM 5333
Telegrams: RIBAZO WESDO LONDON

JANUARY 1959 THIRD SERIES VOL. 66 NUMBER 3 THREE SHILLINGS AND SIXPENCE

EDITORIAL

Honours

Her Majesty the Queen has conferred the Order of Merit on The Right Hon. The Viscount Samuel [*Hon. F*].

Mr. Basil Spence, President, and Mr. C. D. Spragg, Secretary, R.I.B.A., have been elected Honorary Members of the Institute of South African Architects. The presentation of certificates of Honorary Membership will take place when they visit Johannesburg on 23 March.

Prompt payment of Subscriptions: Message from the President

The Council have asked me to bring to the notice of members the importance of paying promptly their subscriptions which became due on 1 January. At the end of June last year nearly 25 per cent of the subscriptions were unpaid, representing a sum of approximately £25,000.

When large sums of this nature are outstanding the financial position is made difficult and involves a considerable loss of interest which might otherwise have accrued to the benefit of the Institute's funds. The Bye-law requirements are interpreted in the most lenient way possible and unofficial reminders are sent to members whose subscriptions are unpaid as well as those specified by the Bye-laws. These, however, involve considerable additional work for the staff concerned and a large postage bill.

I hope therefore that those members who have not already done so will make a point of paying their subscriptions during January and I would ask them to consider doing so by means of a banker's order. The Secretary will be glad to send banker's orders to members on request.

BASIL SPENCE,
President.

The Moscow Congress

There will be a meeting at the R.I.B.A. on Thursday 8 January at 6 p.m., at which the subject to be discussed will be the Moscow Congress. The speakers will be Mr. A. W. Cleeve Barr, Mr. Arthur G. Ling, Professor Robert H. Matthew and Mr. Paul Drake. The President will be in the chair. The speakers will be making extensive use of the excellent slides which many of them brought back.

Refreshments will be served beforehand from 5.30 until 5.50 p.m.

Architect and Engineer: Joint Meeting

Advance copies of the papers by Mr. E. D. Jefferiss Mathews[*F*] and Mr. Ove Arup to be given at the Joint Meeting at 5.30 on the 20th of this month at the Institution of Civil Engineers are available on application to the Secretary R.I.B.A. for members who wish to receive them before the meeting. No tickets are required. Members who wish to take part in the discussion following the papers are asked to inform the Secretary of the Institution of Civil Engineers, Great George Street, Westminster, S.W.1.

Building Prospects for 1959

Further Government measures designed to encourage increased investment in both the public and private sectors in 1959 were announced towards the end of 1958. On 20 November, Bank Rate was reduced to 4 per cent, the lowest level for more than three years. Also in November the Government's House Purchase Bill was launched. This provides for an Exchequer loan of £100 million to approved Building Societies to be devoted to mortgages on pre-1919 houses valued at £2,500 or less; this will enable the Societies to lend substantially more than at present on the newer houses. The Bill also sets out arrangements for extending improvement grants for modernising old houses.

In early December, the White Paper on secondary education announced an increased building programme for both primary and secondary schools, amounting to some £300 million over the period 1960–65, together with an immediate increase in the number of minor works to be undertaken.

The level of building output in the third quarter of 1958 was about the same as a year earlier, although new building work was slightly greater. A fall in local authority house building was more than offset by increases in private house building and in miscellaneous public building work. Considerably more private houses were under construction at the end of the quarter than a year earlier, so that the output of private houses is likely to continue to increase. Private industrial building in the third quarter of 1958 was slightly less than a year earlier, and a continuing decline may be expected unless there is a substantial and quick recovery in new orders, which seems unlikely.

Council Business

The last meeting of the Council for 1958 was held on 9 December, with Mr. Basil Spence, President, in the chair.

Arrangements have been made, with the Council's approval, for a work on an architectural subject to be painted by Mr. John Piper to be presented by the President to the Institute of South African Architects in commemoration of the opening of their new headquarters building during the President's tour of South Africa in March 1959.

Formal approval was given to the award made by the Jury of the Leicestershire and Rutland Society of Architects for the seven-year period ending 31 December 1957 in favour of Shops and Flats, New Parks Estate, Leicester, designed by Messrs. Symington, Prince and Pike (W. J. Prince [*F*], M. W. Pike [*F*] and L. C. Candlish [*A*].

The Council have been in correspondence with the Ministry of Transport and Civil Aviation in regard to a proposal to set up Committees in a number of the larger cities to study the planning of new motor roads in built-up areas related to the new system of national motorways.

The Council, appreciating that this particular matter concerns the feeding in of traffic from the national motorways into the larger cities and the impact of this traffic on considerations of planning and layout of streets and buildings, have been pressing the Institute's view of the need for bringing in architectural advice on the formation of these Committees. They have reminded the Ministry of the important contribution which the profession, with its knowledge of civic design and town planning, could make to the deliberations of the Committees.

In reply, the Ministry have stated that it was not proposed to give directions on the constitution of the Committees, but to leave it to the local authorities concerned.

On reviewing this correspondence, the Council gave consideration to two separate facets of the overall problem of the planning of modern roadways. In regard to the planning of national motorways, it was felt that much more should be done in relation to landscaping and more appropriate design of structures related to the motorways. It was agreed that the strongest representations possible should be made on these aspects and that the support of the Royal Fine Art Commission and the Institute of Landscape Architects should be enlisted.

In regard to the design of urban motorways, the Council felt that the impact of this new construction on the plan of towns and cities was insufficiently appreciated and that, again, representations on the need for the fullest co-operation of all those technically qualified should be made.

It was agreed to make such representations to the city authorities who were in process of setting up study groups, and that the attention of the Ministry of Housing and Local Government and the Royal Fine Art Commission should also be drawn to the problem.

The Council approved a joint recommendation from the Codes and Standards Committee, the Public Relations Committee and the Science Committee in regard to the sizes and design of Institute papers and publications. When fresh stocks of these are being ordered, they will in future conform in size to the 'A' series of international paper sizes, as given in B.S. 1311 (amended 1958), and the design of the Institute's publications is to be supervised by Mr. Herbert Spencer.

It was agreed to urge other organisations and individuals in the building industry to collaborate in this change of sizes. At present architects receive papers of every conceivable size, which makes filing and reference difficult. The acceptance of a standard range of paper sizes would be the first step towards achieving useful technical literature in the industry, and for this the collaboration of all organisations and individuals is required.

The Council suggest that the size A. 4 should be used for all literature which is intended for filing or retention for reference.

The Council also approved a proposal to set up a Joint Liaison Committee with the R.I.C.S. consisting, in the first instance, of the Chairman and one other member of the Cost Research Committee of each institution.

The next item on the agenda concerned the formation of limited liability companies by architects.

The Council considered a report of the Practice Committee regarding the recent decision of the A.R.C.U.K. to the effect that it would not be contrary to the provisions of Principle V of the A.R.C.U.K. Code of Professional Conduct for architects to form limited liability companies to provide services such as the following:

(*a*) The acquisition of office premises and accommodation for use by the architects.
(*b*) The provision of office furniture, typewriters and other equipment for the firm.

Provided that (i) the architects carried on their professional practice in the normal way, personally entering into contracts with clients, (ii) neither the architects nor their staff were employed in their professional capacities by the company, (iii) the architects do not divest themselves of any of their professional responsibilities nor attempt to transfer them to the company, and (iv) the operation of the company would not bring them into conflict with any of the Principles of the A.R.C.U.K. Code, particularly Principles VII and VIII.

After a full discussion, the Council were of the opinion that the formation of such service companies would not be contrary to the provisions of the R.I.B.A. Code of Professional Conduct. The Practice Committee have been asked to prepare a memorandum giving general information on the subject for publication.

In connection with the Symposium on Urban Renewal to be held at the Royal Institute on 22 May under arrangements made by the Town and Country Planning and Housing Committee, it was reported that the Society for the Promotion of Urban Renewal were organising an exhibition which will be shown at the R.I.B.A. during the Symposium and will subsequently go on tour with the assistance of the Civic Trust.

On the recommendation of the Public Relations Committee, it was agreed to make a grant totalling £750, through the Public Relations Committee's account, towards the cost, and for the R.I.B.A. to sponsor the exhibition jointly with the S.P.U.R. and the Civic Trust.

The Shape of Things

On 2 December Mr. Basil Spence, President R.I.B.A., opened the SUNDAY TIMES Exhibition of Photographs at the

Building Centre. After congratulating the SUNDAY TIMES on its enterprise in publishing them, Mr. Spence said he would like to see the series go one step further and include some of the modern work put up since the war. The exhibition remains open until 17 January.

The following day, Mr. Spence again visited the Building Centre and presented certificates awarded in the Competition for Manufacturers' Trade and Technical Literature, 1958, sponsored jointly by the R.I.B.A. and the Building Centre. Mr. Bryan Westwood [*F*] who was one of the judges of the competition said that in trade literature there were still not enough simple dimensions given. This year's entry was not quite so large as in 1957, but the quality was considerably better.

The Architecture Club

A supper of the Architecture Club was held at Simpson's in the Strand on Thursday 27 November, under the chairmanship of the President, Viscount Esher, and was followed by a debate on the proposition 'That British representation at International Exhibitions is deplorable'.

The debate was opened by Mr. Misha Black, with illustrations of the recent Brussels Exhibition; Sir John Balfour replied and the discussion was continued by Miss Adburgham, Mr. Maxwell Fry, Lieut.-General Sir Kenneth Loch, Sir Hugh Casson, Mr. W. P. N. Edwards and Mr. Gontran Goulden.

Before the debate Mr. Darcy Braddell announced the resignation of Lord Esher from the Presidency of the Club, an office he has held for some twelve years. His resignation was received with profound regret. The new President is Lord Conesford.

For quite independent reasons Mr. Braddell has himself resigned the Honorary Treasurership, an office he has held for some thirty-three years, and Mr. Godfrey Samuel has resigned the Secretaryship which he has held for ten years. Their resignations were also received with much regret. The new Treasurer is Mr. E. D. Jefferiss Mathews [*F*] and the new Secretary Mr. Gontran Gouldan [*A*]. From 1 January 1959 communications should be addressed to him at The Building Centre, Store Street, London, W.C.1.

The Directorship of the N.F.B.T.E.

Mr. Stanley Hearder is to retire from the directorship of the National Federation of Building Trades Employers on 31 March. He has held the post since 1945. The Council of the N.F.B.T.E. have appointed as his successor Mr. Peter E. Trench, O.B.E., T.D., B.Sc., M.I.O.B., joint managing director of Messrs. Bovis Ltd., who joined the Federation on 1 January.

During his period of office Mr. Hearder has co-operated closely with the Royal Institute, a fact which has always been much appreciated. The JOURNAL wishes him a long and happy retirement. His successor, Mr. Trench, personifies the best kind of leadership that has emerged in the industry since the war. He is exceptionally well equipped for his new job.

After reading modern languages at Neuchâtel University Mr. Trench obtained an honours degree in economics at London University, and continued his studies at Cambridge. In the last war he served as a military planner on the staff of Earl Mountbatten and later became Assistant-Adjutant to General Montgomery. Among his many activities he is a member of the Building Operations and Economics Committee of the Building Research Board and of the Technical Committee of the Building Centre. He joined Messrs. Bovis in 1946 and by 1951 had been appointed managing director. He is widely travelled.

Le Corbusier Exhibition for London

The Le Corbusier Exhibition which is being shown at the Walker Gallery, Liverpool, is being moved to the Building Centre, London, where it will be opened by His Excellency the French Ambassador on 3 February.

The exhibition will be broken into three sections with the bulk of it on the third floor. It will remain open at the Building Centre until 6 March from 9.30 a.m.–5 p.m. on weekdays (Thursdays 9.30–7), 9.30 a.m.–1 p.m. Saturdays, and 2 p.m.–6 p.m. Sundays.

There will be informal evening talks on 12, 19 and 26 February and on 5 March. The times and names of speakers will be given in the February JOURNAL.

Junior Liaison Committee

The next meeting sponsored by the Junior Liaison Committee has been arranged by the Royal Institution of Chartered Surveyors Junior Organisation and will be held at 12 Great George Street, S.W.1, on Thursday 19 February at 6.15 p.m.

The meeting will take the form of a discussion on the subject of 'Building Quickly—a Buckinghamshire Experiment'. A team of three speakers is expected which will include Mr. F. B. Pooley, F.R.I.C.S., A.M.T.P.I. [*F*], Mr. T. M. Larkin, A.R.I.C.S., and Mr. P. H. P. Lovell, M.I.O.B.

Those attending will be invited to take part in a general discussion following the main speakers and any younger members who are interested in attending should inform the Secretary R.I.B.A. before 12 February.

Review of the Institute's Finances

At their meeting on 9 December 1958, the Council gave approval to the report submitted by the Finance and House Committee. The report is published overleaf for the information of members and for the purpose of reporting progress at the Special General Meeting to be held on 6 January 1959 on the review of the Institute's business affairs.

R.I.B.A. Diary

TUESDAY 6 JANUARY, 6 p.m. General Meeting. Announcement of Award of Prizes and Studentships. Special General Meeting.
THURSDAY 8 JANUARY, 6 p.m. Meeting of the *Moscow Congress*.
MONDAY 12 JANUARY, 6 p.m. Library Group. Dr. Arnold Noach will introduce an evening on Giuseppe Manocchi, a draughtsman working for Robert Adam.
TUESDAY 13 JANUARY, 6.30 p.m. Discussion on *Suspended Ceilings*.
TUESDAY 20 JANUARY, 5.30 p.m. Joint meeting with Institution of Civil Engineers at Great George Street, S.W.1. Papers by Mr. E. D. Jefferiss Mathews, O.B.E., A.R.I.C.S. [*F*], and Mr. Ove Arup, C.B.E., M.I.C.E., M.I.Struct.E.
SATURDAY 31 JANUARY, 2.30 p.m. Local Government Architects' Society. General Meeting.
TUESDAY 3 FEBRUARY, 6 p.m. General Meeting. Address to Students and presentation of Prizes and Medals 1959 by the President, Mr. Basil Spence, O.B.E., A.R.A., A.R.S.A. Criticism by Mr. Edward D. Mills [*F*] of work submitted for Prizes and Studentships.
MONDAY 9 FEBRUARY, 6 p.m. Library Group. Mr. David Cole [*A*] will introduce an evening on David Mocatta (1806–1882).

Report of the Finance and House Committee

Chairman: Mr. E. D. Jefferiss Mathews, Honorary Treasurer

(A) REVIEW OF THE INSTITUTE'S FINANCES

1. Before dealing in detail with the anticipated accounts for 1958 and with estimates for the years 1959–62, the Committee think that certain general considerations in regard to the Institute's finances should be set out.

2. The Council will recall the resolution passed at the Annual General Meeting in May 1958, requesting the Council:—

> 'To carry out a comprehensive review of the Institute's office organisation and business affairs, and also to reconsider its financial policy so that its professional and public activities may be effectively developed . . . to call for a Special General Meeting (now fixed for January 1959) to report progress. . . .'

3. **The review of the office organisation,** and machinery for the service of Committees, has begun, but is not sufficiently advanced for a report to be presented to the Council. Mr. Ricketts will require further time to complete his examination of the office organisation in relation to the study, now in progress by the Finance and House Committee, of the programmes of activities which other Committees of the Institute have in mind. Provision is included in the estimates for the probable requirements resulting from these reviews.

4. In their **Reconsideration of Financial Policy,** the Committee wish first to recall that the position brought about in 1957 was not attributable solely to the building programme at No. 68 and No. 66 Portland Place. Substantial additional expenditure had been approved for the development of the Institute's activities. Increased staff for these activities was necessary and a new scale of staff salaries to conform with salary scales operating generally had to be introduced. In any case, a further increase in subscription rates would have been necessary, above the rates introduced in January 1957, since, had there been no interest and sinking fund to pay on a mortgage, income based on subscriptions at the 1957–58 rate would for the next three years have fallen short of expenditure by about £10,000 annually.

5. **The Committee have reviewed** the position in the light of these facts and studies:

(i) It is now apparent that we have successfully overcome the difficult current year of 1958 when restrictions were necessary to balance a budget before the new subscription rates become operative in January 1959:

(ii) The present improved and more stable condition of the national economy;

(iii) The need for the progressive development of the Institute's activities to meet the demands of members and the position of the profession in present day national society;

(iv) The probable effects on membership of:

(*a*) the increased subscription rates;

(*b*) trends in overseas emigration;

(*c*) likely future trends in respect of the proportion of Fellows to Associates and the diminishing Licentiate class;

(*d*) trends in student intake, and resulting corporate membership intake, having regard to the possible implementation of the recommendations of the Oxford Conference on the raising of the general standard of education for entry to the profession;

(v) The statistical survey of trends in membership carried out by the Institute's Professional Relations Department for the Committee—an extract from which is shown in the table below—shows a continued rise in membership, after allowing for the probable effects stated above, which is contrary to the anticipated trends from the rougher methods of assessment which were the only methods previously available.

Table Showing Calculated Trends in Membership Allowing for Effects Listed in Sub-Paragraph (iv)

Year	Members at 31st March				
	Fellows	Associates	Licentiates	Total corporate members	Students
1958	2,176	13,697	2,297	18,170	5,682
1959	2,050	14,400	2,050	18,500	5,600
1960	1,950	14,950	1,850	18,750	5,650
1961	2,000	15,600	1,750	19,350	5,900

6. As a result of their review, the Committee consider that the Council can change their policy adopted in December 1957, which placed first call on all balances of income over expenditure to be used for the gradual reduction of the Building Loan.

They *recommend that the policy for* 1959 *and subsequent years should be based on the following principles:*

(i) that balances of income over expenditure shall be paid to a Development Fund to be used as the Council may from time to time direct:

(ii) that, subject to the Council's direction as stated above, the loan for the capital expenditure on the building shall be allowed to run its full term of 20 years;

(iii) that budgets for expenditure against carefully anticipated income should, within the principles of (i) and (ii) above, be aimed at a steady progressive development of the Institute's activities in the interests of members.

7. In making these recommendations of policy the Committee have reviewed in detail all aspects of the Institute's finances, and they report as follows:

(i) **Subscription Rates, Entrance and Examination Fees:** They recommend that the increased rates approved by the Council in December 1957, which become operative in January 1959, should remain as necessary for the proper operation of the Institute's affairs. It has already been stated in this report that the increased income is required to meet current demands irrespective of the capital requirement for the building. As will be seen from the Budget Estimates, anticipated income on the revised rates is in no way excessive to meet anticipated requirements.

(ii) **Public Relations:** The Committee propose to increase the allotment and to return to the policy adopted in 1956 of making budgetary provision over three-year periods, with a carry-over of any unspent balance from the first year to the second, etc., so that public relations activities may again be planned on a firm and forward-looking basis.

(iii) **Professional Relations:** Provision has been made for the continuation of the activities begun, and for further development of the information service of the Statistical Department.

(iv) **Science Committee:** Some additional resources have been placed by the Council at the call of the Science Committee, and financial provision is made for these.

(v) **Rebuilding of No. 68 and Additions to No. 66 Portland Place:**

(*a*) During 1958, the Committee were able to make cash

provision to meet payments arising for the building operation without drawing on the mortgage loan and also to defer the sale of a proportion of the investments held for the completion of premises. The effect of this has been to achieve a saving of some £5,000 on mortgage payments and some £2,000 through the appreciation of the securities since their valuation at the end of 1957.

(*b*) The balance of the cost of the building above the £70,000 to be borrowed can be met out of current income in 1958. The Committee have been advised that this may be about £21,000, which is less than originally anticipated. They recommend that it be paid and so avoid carrying forward this liability. After payment a balance of income over expenditure of about £7,000 for 1958 is still anticipated.

(*c*) For future years there will therefore now remain only the interest and amortisation of the £70,000 20-year loan.

(vi) **The Development Fund:**

(*a*) It must be remembered that, by the expenditure of the Completion of Premises Fund, the Institute now has no free reserve funds of any kind. The Committee's proposal to introduce the Development Fund to receive all yearly balances of income over expenditure is intended to provide a working 'cushion' to meet the uncertainties both of income and expenditure which are inevitable in a body such as the Royal Institute.

(*b*) The Committee propose that such balances as are obtained are placed to a separate account—'The Development Fund'—to be held in suitable short-dated stocks or deposit accounts not subject to wide market fluctuations, and therefore readily accessible. This fund should be regarded in part as a working reserve and in part as a fund for the Council to draw upon to finance specific projects which may be to the advantage of the Institute and its members. Such a decision need not preclude the use of part of the fund for reducing the building loan if resources permit it at any time during the 20-year currency of the mortgage.

The Council are therefore recommended to rescind their former resolution allocating all surpluses to the Completion of Premises Fund, and to approve of the creation of a Development Fund as described.

(B) ESTIMATES FOR THE YEARS 1958–61

1. Estimates for the years 1958–61 are set out in the attached table (see page 78).

2. To give a picture of developments during 1958, figures for the year are duplicated: the left-hand column being the estimate given to the Council in February, and the next column being a revised estimate in the light of ten months' working.

INCOME:

3. Anticipated income from **subscriptions in 1958** has been slightly reduced from the original budget estimate because there is indication that arrears owing by members at the end of the year will be higher than average.

4. Income from subscriptions for 1959, 1960 and 1961 has been based on the statistical survey assessment (paragraph (A) 5. (v) of this report) with an allowance deducted at the average rate for arrears each year.

5. Receipts from **examination and entrance fees** have increased slightly above anticipated figures for 1958, but this is not considered a permanent feature. Estimates for subsequent years are based on the assessments obtained from the statistical survey.

6. The actual accrued income from the Sir Banister Fletcher Trust has been brought in for 1958, and the anticipated income in each succeeding year. This income is allocated by Trust Deed to the Library, and is brought in as a contra by the figures against 'Library' in the expenditure tables.

EXPENDITURE:

Capital Expenditure on Furnishings, etc.:

7. The provision of £5,000 in each of the years 1959–61 has been made for furnishings and equipment in the new building in 1959 and subsequently for a programme of redecoration and modernisation of the existing parts of the building, which have had no major overhaul since 1934. An Advisory Panel has been appointed to assist the Committee, and the expenses incurred by this Panel will be paid out of the allocation.

Salaries and Wages:

8. The reduced figure in 1958 is the net result of transferring salaries of Library staff to the heading 'Library', and of certain increases approved by the Council during the year. In 1960 and 1961, for the purposes of budgeting, provision of 5 per cent per annum increase has been made against the probability of new staff requirements for increased Institute activities. The figures cover the charges arising from the change of Secretaries.

Library:

9. For clarity, Library expenditure is separated into 'Staff Salaries and Overheads' and 'Maintenance and Replacements'.

In common with the other main departments, general overheads (heat, light, cleaning, etc.) and pooled services (stationery, postage, etc.) are not charged against Library, but carried under the general headings 'Premises' and 'Administration'.

Public Relations:

10. Through the receipt of a grant of £1,000 from the Civic Trust, the public relations grant for 1958 will be underspent by some £800. It is proposed that this figure be carried forward and that in addition the sum of £10,500 be allocated, spread over the three years 1959–61. A separate Public Relations account will be established.

Contributions to Allied Societies:

11. Pending the outcome of the overall review of the constitution of the R.I.B.A. and Allied Societies, estimates for the four years are based on a rebate of one-quarter in the United Kingdom and one-third overseas on rates of subscription current in each year.

Loan Repayments:

12. The Council will recall that the agreement with the Liverpool Victoria Friendly Society is in the nature of a bank loan rather than a standard mortgage agreement, i.e. it provides for payment of interest at 6 per cent on the outstanding capital, together with a quarterly capital repayment of £875. The effect of this is to provide a payment declining steadily over the 20 years, with a corresponding release of funds for other purposes.

GENERAL REVIEW TO 1961:

13. **Income from subscriptions** based on the statistical survey of membership trends will continue to rise slightly and, apart from the consequent effect of this on examination and entrance fees, the Committee do not anticipate any major changes under present policy and operation of the Institute's affairs and that of the profession. They cannot take into account any effect on income which might be brought about by any changes of relationship between the Royal Institute and the Allied Societies as a result of the adoption and operation of any recommendations of the Constitutional Committee. The statistical survey does not anticipate that there will be any effect of any adoption of recommendations of the Oxford Conference over this period.

14. **Expenditure** assessments can only be based on the assumption of the continuation of the present policy of the Institute after allowance has been made for average increases likely to arise from known developments. As in assessment of income, account cannot be taken of any changes arising from the adoption and operation of any recommendations of the Constitutional Committee. An exception to general trends is the provision which has been made for expenditure in 1961 for the I.U.A. Congress to be held in London. This reduces the anticipated balance of income over expenditure for that year; this indicates the value which will be obtained by the 'cushion' provided by the Development Fund

Rough Estimate of Income and Expenditure for the years 1958–1961

	1958 original estimate	1958 amended estimate	1959	1960	1961
INCOME					
SUBSCRIPTIONS	128,000	126,000	154,000	155,000	160,000
SALES OF PUBLICATIONS	7,500	7,000	7,000	7,000	7,000
EXAMINATIONS	22,000	24,000	23,000	23,000	23,000
ENTRANCE FEES	3,000	4,000	4 000	4,300	5,000
RENTS	1,500	1,500	1,725	1,725	1,725
SUNDRIES (Including interest on investments)	500	1,500	500	500	500
LIBRARY (Sir Banister Fletcher Trust)	—	6,500	3,000	3,000	3,000
	162,500	170,500	193,225	194,525	200,225
EXPENDITURE					
PREMISES					
Ground Rent	2,140	2,140	2,140	2,140	2,140
Rates	7,500	7,500	9,500	9,750	10,000
Insurances	750	1,025	1,025	1,025	1,025
Heating and Electricity	4,500	4,500	5,250	5,250	5,600
Repairs, Furniture and Fittings	3,000	3,700	3,300	3,300	3,300
Telephone	1,200	1,200	1,300	1,350	1,400
Housekeeping	2,100	2,100	2,300	2,400	2,500
Capital Expenditure on Furnishing, Decorations and Sundries (inclusive of Fees for Design)	—	—	5,000	5,000	5,000
ADMINISTRATION					
Salaries and Wages	58,000	49,700	58,000	61,000	62,500
Pensions	1,540	1,035	1,175	1,390	1,390
Staff Pension Scheme	5,500	4,625	4,400	4,900	5,350
National Insurance	1,350	1,245	1,500	1,600	2,100
Printing, Stationery and Postage	12,000	11,500	12,000	13,000	14,000
Professional Relations Questionnaires	500	500	500	1,000	500
LIBRARY:—Salaries, Insurances and Pensions Scheme	—	9,000	9,500	10,100	10,500
Purchases and Replacements	1,000	2,000	2,000	2,000	2,000
PUBLIC RELATIONS	1,500	2,400	3,500	3,500	3,500
CONTRIBUTIONS TO ALLIED SOCIETIES	17,000	17,000	21,300	21,500	22,500
EXAMINATIONS	6,000	6,450	6,500	7,000	7,000
GRANTS SUBSCRIPTIONS	1,440	1,440	1,450	1,450	1,450
PUBLICATIONS	4,000	4,000	8,500	4,000	9,500
MEMBERS' TRAVELLING EXPENSES	5,750	4,300	5,000	5,000	5,000
MISCELLANEOUS					
General Meetings	1,300	1,300	1,500	1,500	1,500
I.U.A.	600	700	800	600	4,000 (*b*)
Liaison Overseas	1,000	—	1,500	1,000	1,000
Professional Fees	800	1,050	1,400	800	800
Presidential Portrait	550	550	—	550	—
Sundries	2,900	2,000	2,250	1,800	1,900
MORTGAGE REPAYMENTS	5,000	500	7,600	7,400	7,200
TRANSFERRED TO CAPITAL ACCOUNT TO MEET EXPENSES FOR BUILDING	—	21,058	—	—	—
	148,920	164,518	180,190	181,305	194,655
BALANCE for transfer to proposed Development Fund	13,580	5,982	13,035	13,220	5,570
	162,500	170,500	193,225	194,525	200,225

Notes:

(*a*) *In considering estimates of expenditure on specific headings, e.g. Examinations, Public Relations, etc., it should be remembered that the expenditure shown does not include any figure for office overheads, staff salaries or services common to all departments. These expenses are aggregated under the headings 'Premises' and 'Administration'.*

(*b*) *Includes estimate for cost of International Congress in London (non-recurrent).*

and points to the need for judicious spending by the Council of that fund in any year.

15. Generally, the restrictions imposed during 1958, the trends shown by the statistical survey, and the essential balance between income and spending activities provided by the new subscription rates, have stabilised the Institute's financial position and enable a more optimistic view to be taken of the possibility of further being able to develop the Institute's activities and service to members in the future. But the Committee wish to stress that forward budgets must of necessity be very approximate assessments based on the widest generalities known today. No budget can take account, for example, of the effect of any changes in national economy which may occur except to provide, as the policy now recommended provides, reasonable reserve resources to meet unknown contingencies.

Progress in Planning Hospitals

by R. Llewelyn Davies [*F*] and John Weeks [*A*]

Read at the R.I.B.A., 21 October 1958. Mr. J. H. Forshaw, C.B., Vice-President, in the Chair

Recent advances in Hospital Planning

by R. Llewelyn Davies

Director of the Nuffield Foundation Division of Architectural Studies

AS A PROFESSION, we architects sometimes fail to learn fast enough from our own experience, and we make the same mistakes too often. The work of the R.I.B.A. Science Committee is helping us to cure this, by encouraging the habit of continuity in our thinking, and thereby helping us to give a better service to society. In discussing the progress of hospital design in this country I propose to recall the state of our knowledge four years ago when this Institute held a conference on hospital planning[1] and to try to relate our newest ideas to those put forward then.

Progress in hospital design over the last four years has sprung from three principal sources:

1. Practical experience in the design and construction of hospitals.
2. Research into problems of hospital planning.
3. Changes in medical practice and medico-social advance.

[1] 'Design for Health Buildings': R.I.B.A. Conference, 21–22 October 1954.

These influences are of course not separated up so tidily in reality—they overlap and run into each other, but it is convenient to think of them in this way.

This evening, in view of the limited time at my disposal, I shall concentrate on the development of ideas in the broad field of *general hospital planning*. There have also been changes in our views on the design of individual departments, but I shall deal only with these in so far as they affect the overall plan. I shall illustrate the discussion with hospital designs with which I have been associated, not because they are any better than many others which have been produced in recent years, but because I happen to know how they developed.

The design of the Princess Margaret Hospital at Swindon illustrates the ideas of the 1954 conference[1] effectively. It also shows how some of these ideas have changed during the subsequent years—for the design has been progressively modified under the impact of new knowledge.

This design has been described as a matchbox on a muffin: the wards are in the matchbox, a compact slab block, with two wards on each floor served by one central group of lifts and stairs. All other departments are in the muffin—a horizontal building at ground floor level, spreading out from the base of the ward block. (Owing to the slope of the ground at Swindon there are two levels, the upper and lower ground floors.) The main object of this design was to give maximum freedom for growth and change to these departments—out-patients, casualty, operating theatres and X-ray—which need this freedom—a freedom lost if they are placed in a multi-storey block. The wisdom of this is already apparent. During the development of the Swindon design we have on several occasions had to alter and enlarge these departments, but it has been easy to do this without disrupting the design, or delaying progress.

[1] 'General Hospital, Swindon': ARCHITECTURAL REVIEW, London, 1957, 121 (720), 58.

Originally the ward block was seven storeys high. Now, in the design at present under construction there are only four floors of wards. How has this change come about? All three of the factors which I have listed earlier have contributed to it. First of all we have had increasing evidence from research that fewer beds are needed to serve a given population than we thought to be necessary five years ago. The first two sets of figures—for Northampton and Norwich—are the results of our pioneer surveys, made with the principal aim of establishing a reliable technique for measuring the case-load from a defined population.[1] The figures were greeted with some scepticism when we first published them, but since then several surveys, using the same methods,

[1] Nuffield Provincial Hospitals Trust (1955): *Studies in the Functions and Design of Hospitals*. (Chapter 7.)

Swindon Hospital, view from South. Architects: Powell and Moya [*FF*] Consultant: R. Llewelyn Davies [*F*]

Block by courtesy of HOSPITAL AND HEALTH MANAGEMENT

have been made by others. The first made by the Oxford Regional Hospital Board for the Reading area, similar demographically to Northampton and Norwich, brought a result almost identical with our studies.[1] Another, for the very different, industrialised area of Barrow-in-Furness is still in progress and the figures shown are approximate. Several other surveys are in progress in different areas and before long we may have a reliable guide to the service needed, related to the population and to known demographical factors. The value of such a guide to hospital architecture hardly needs emphasising, it will eliminate much of the frustration and waste of time which hospital projects have suffered in the past.

At Swindon, in the light of this research it was decided to make some reduction in the beds provided, but the reduced height of the ward block was due mainly to other influences.

First, following Nuffield research, it was decided to adopt the *bifocal* ward plan, that is an arrangement in which two nursing units are grouped to share ancillary accommodation. This gives a small nursing unit as the basis for nursing team-work, but leads to larger, more efficient and economical administrative units.[2] The Swindon ward follows the Musgrave Park design in having two 20-bed units grouped as a 40-bed ward, and 80 beds on each floor. The effect of this decision was an immediate reduction in the number of floors necessary to provide the necessary beds, and a considerable reduction in cost.

Further, practical experience in working out the design, coupled with a change in medical attitudes, resulted in the removal from the main building of all maternity beds, and all children's beds. The removal of maternity beds was suggested by Molander at the 1954 conference, and the arguments for it have since been strengthened by the cross-infection risks arising from organisms resistant to antibiotics. During the development of the design it was decided to put all children, whether admitted under the paediatrician, the surgeons, or other specialists, into a unit specially designed for the needs of children, including rooms for the admission of mothers with child patients. As children form 10 per cent to 12 per cent of hospital patients, their removal to a specially designed unit takes a sizeable piece out of the main ward block.

At the 1954 conference it was noted that the latest developments in design, towards more compact planning of individual departments, might lead to a revival of interest in single-storey hospitals. This has happened both in the United States of America[1] and here in England. The new hospital at Wexham Park, Slough, is an example. Slough was originally planned like Swindon, with multi-storey ward buildings. But, owing to the need to build in stages, there had to be two ward buildings. Also the site was very flat; and a single-storey solution was investigated as an alternative. This was found to give shorter transport times than the multi-storey solution, as well as having manifest advantages, in cost, in flexibility and ease of construction in stages.

The ward for Slough is the Nuffield plan at Larkfield, bent at right angles, giving a central entrance and forming a semi-enclosed square garden for each ward. The day space, at the centre of the 'L' looks out onto this garden. Each ward is connected by a short corridor to the main hospital 'street'. Slough is a striking example of how real life experience can pick up the results of research, and make something quite new from them. When we in the Nuffield team first studied how to make hospital design more compact and economical we had not thought in terms of single-storey hospitals—which were then very unfashionable. We are now looking forward to seeing the results applied under the opposite conditions—on a constricted London site where vertical building will be essential, at St. Thomas's Hospital. St. Thomas's has recently undertaken an interesting experiment to determine whether the principles underlying the Larkfield design are appropriate to their needs, with very encouraging results.[1]

So far I have been discussing how research, practical experience and changing medical attitudes have confirmed or modified the ideas of four years ago. But in hospital planning it is not enough to be up-to-date. From the moment when an architect begins to design a hospital to the day when it is occupied may be five to ten years, therefore a hospital designed on the ideas of today is likely to be ten years behind by the time it is brought into use. We therefore have to try to make the wisest predictions we can for the future. One new factor likely to influence us in the future is the resistant staphylococcus.

The problem of cross-infection appeared five years ago to be on the way out—today it is again a matter of the utmost concern. The Medical Research Council has a special committee which is concerned with the promotion of research in this field, which is already having repercussions on hospital design. In particular the work of Dr. Blowers in Middlesbrough[2] and Dr. Shooter and others at St. Bartholomew's Hospital,[3] are already changing our ideas on operating theatre design. We can expect still wider and more general effects on hospital design. We may be driven to provide an increasing proportion of single rooms and, to what Americans call 'individualised' methods of care. This means that so far as possible medicines, instruments and other articles used in the care of a patient are sterilised and henceforward used only by that patient during his stay in hospital. This may result in increased storage facilities near each patient's bed with a corresponding reduction in size and importance of the ward ancillary rooms. Undoubtedly the need to combat cross-infection will greatly accelerate the present trend towards the introduction of centralised sterilisation, centralised linen service and centralised washing-up of crockery.

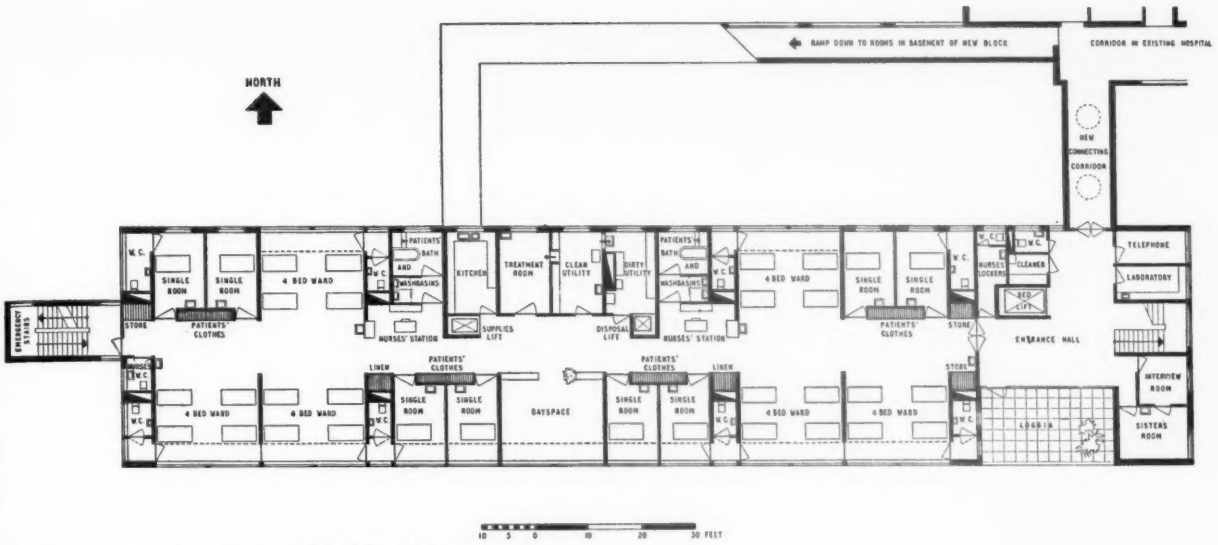
In the Nuffield experimental surgical unit at Musgrave Park we included a

[1] Barr, A.: 'The Population Served by a Hospital Group'. LANCET, 1957, ii, 1105–8.
[2] Llewelyn Davies, R.: 'The General Design Problems of the Hospital'. Paper read at the R.I.B.A. Conference, 22 October 1954.

[1] 'The Flattened Out Hospital'. ARCHITECTURAL FORUM, 1955, 103 (5), 166–9.

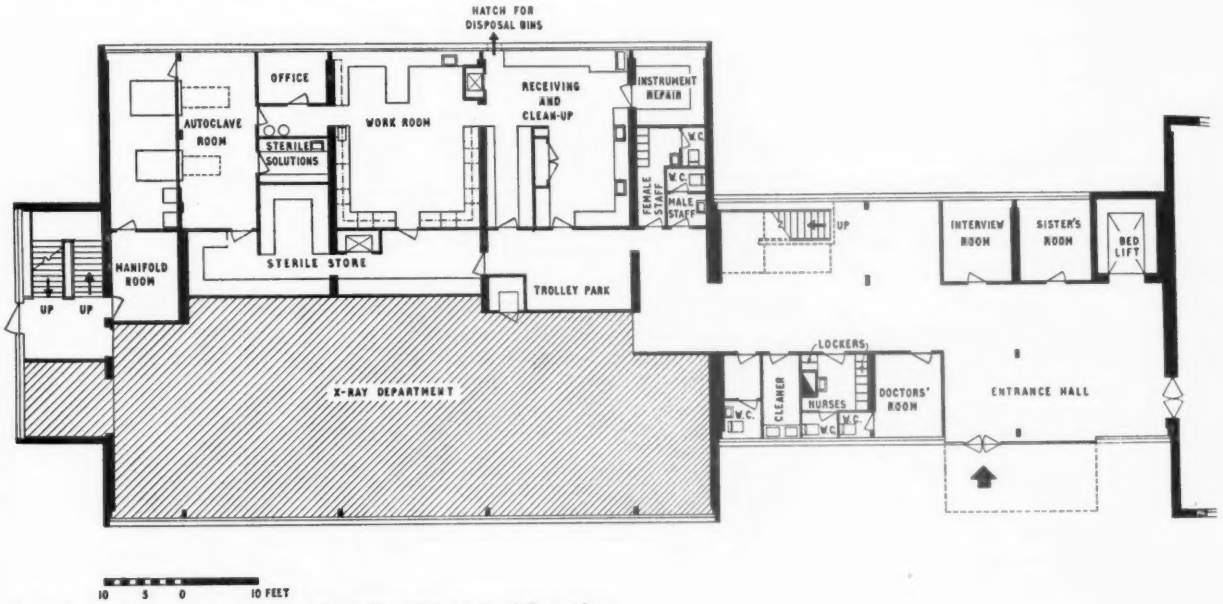
Means of Travel	Journey	Multi-Storey Scheme	One-Storey Scheme
Patients' Trolley	Surgical Wards to Theatres, average	60 sec.	37 sec.
,, ,,	Gyne. Wards to Theatres, average	165 sec.	83 sec.
,, ,,	Children's Ward to Theatres, average	115 sec.	96 sec.
,, ,,	X-ray Dept. to Theatres, average	70 sec.	66 sec.
Walking Food Trolley	Kitchens to Dining Rooms	Nil	Nil
,, ,, ,,	,, ,, Standard Wards, average	165 sec.	84 sec.
,, ,, ,,	,, ,, Gyne. Ward, average	225 sec.	84 sec.
,, ,, ,,	,, ,, Children's Ward	175 sec.	100 sec.
,, ,, ,,	,, ,, Maternity	245 sec.	60 sec.
Instrument Trolley	Central Sterilising to Theatres	70 sec.	10 sec.
,, ,,	,, ,, ,, O.P.D.	35 sec.	90 sec.
,, ,,	,, ,, ,, Path. Labs.	5 sec.	115 sec.
,, ,,	,, ,, ,, X-ray	5 sec.	75 sec.
,, ,,	,, ,, ,, Standard Wards, average	97 sec.	84 sec.
,, ,,	,, ,, ,, Gyne. Ward, average	95 sec.	114 sec.
,, ,,	,, ,, ,, Children's Ward	45 sec.	100 sec.
,, ,,	,, ,, ,, Maternity	120 sec.	60 sec.
Walking	O.P.D. to Dispensary	32 sec.	Nil
,,	,, ,, Pathology	35 sec.	Nil
,,	,, ,, X-ray	12 sec.	Nil
Walking	The longest possible journey (i.e.: for Night Superintendent) between two beds at extreme ends	243 sec.	210 sec.

[1] St. Thomas' Hospital: 'Experiment in Ward Layout'. HOSPITAL, London, 1957, 53 (6), 383–91.
[2] Blowers, R.: Discussion on the Ventilation of Operating Theatres. An informal meeting held at the Institution of Heating and Ventilating Engineers. (Report in the press.)
[3] Shooter, R. A. *et al.*: 'Spread of Staphylococci in a Surgical Ward'. BRITISH MEDICAL JOURNAL, 1958, i, 607–13.

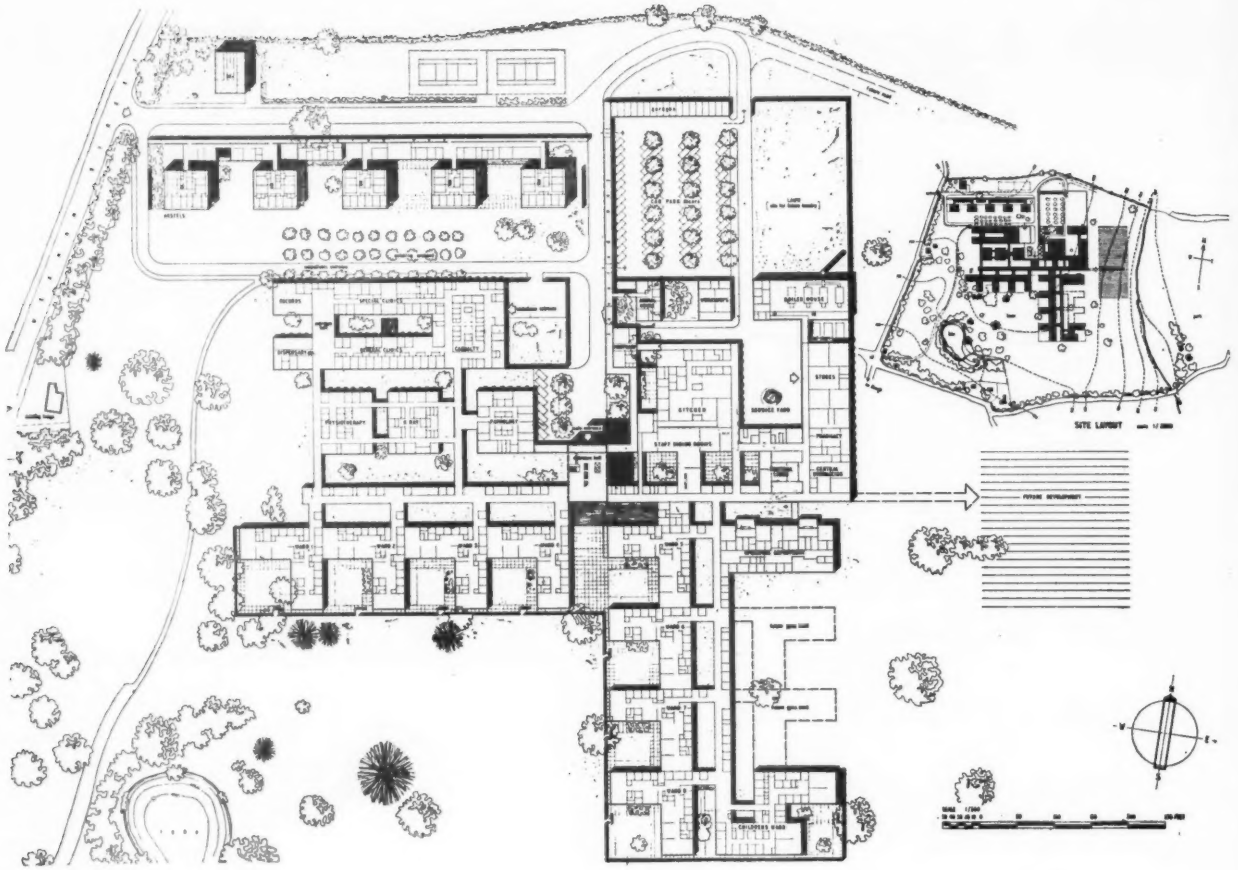


Nuffield experimental ward unit, Larkfield Hospital, Greenock

Nuffield ward units and operating theatre, Musgrave Park Hospital, Belfast



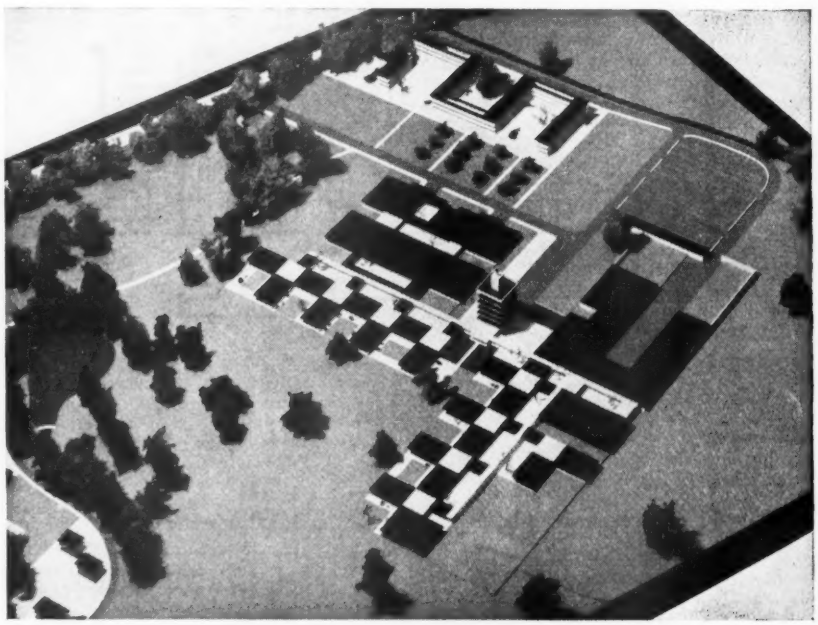
Nuffield experimental unit, Musgrave Park Hospital. Ground floor plan



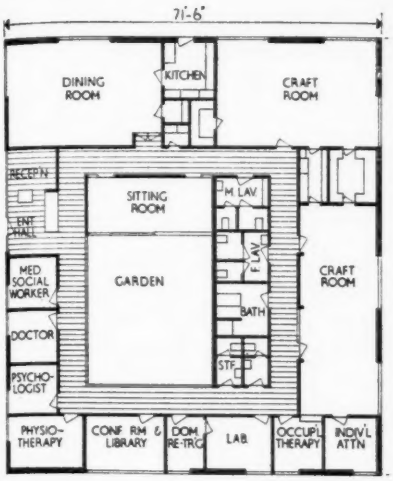
Plan and model of Slough Hospital, Wexham Park. Architects: Powell and Moya. Consultants: R. Llewelyn Davies and John Weeks

central sterilising department designed to do all the sterilisation necessary for a 600-bed hospital, excepting only the surgeons' instruments. This design is experimental. We had little to go on in thinking it out, as no comparable department exists in Great Britain. We intend to use the experience gained in this unit to sort out complex problems of function and design involved in grafting a centralised service of this sort on to an existing hospital organisation. We have already learnt that lengthy and laborious preparation must proceed the institution of such a service. Nursing and medical staff in the hospital spent twelve months working with us, meeting fortnightly to sort out what the central service should provide if it was to replace efficiently the existing local stocks and local sterilising arrangements. The department is now working, delivering packaged kits for all the procedures throughout the hospital. During the next two years we shall undertake studies planned to show how design and organisation of the department can be improved for maximum efficiency.

Future planning will also be affected by predictions as to the hospital population and changes in the social role of the hospital. A recent study by the Oxford



Nuffield Geriatric Day Hospital, Cowley Road, Oxford. Architects: R. Llewelyn Davies and John Weeks



ARCHITECTS' JOURNAL

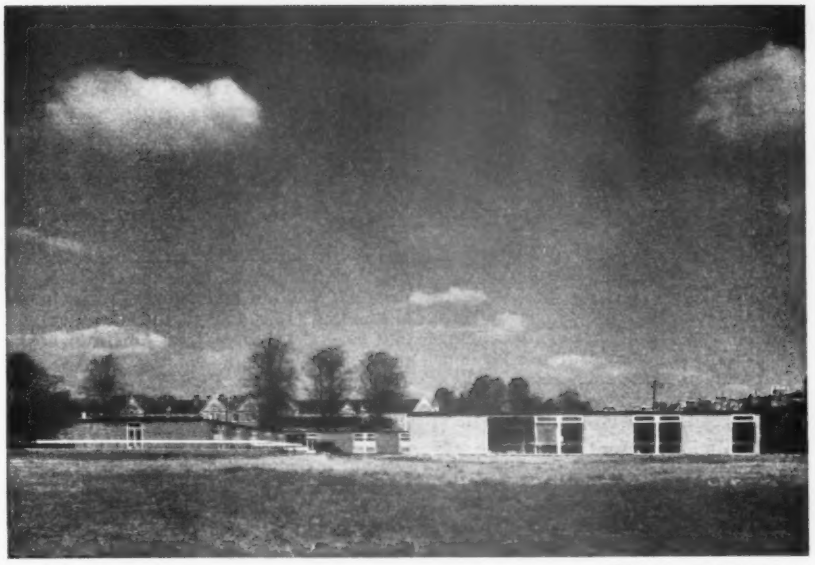


photo: ARCHITECTURAL REVIEW

Regional Hospital Board on trends in medical care is of considerable interest.[1] It shows that while there may be a long-term decline in patients suffering from many types of disease, there is likely to be no decline—there may even be an increase—in accidents. Modern society and preventive medicine appear unable to do anything to make life in the home, or on the roads, from becoming more and more dangerous. Hence the accident and casualty departments are likely to be of increasing importance in future hospitals and warrant much more intensive study than has hitherto been given to them. Other studies, including our survey of the proportion of ambulant cases[2] and Professor McKeown's recent inquiry into the types of patient present in hospital institutions in the Birmingham area[3] point to the need to consider more than one kind of accommodation for in-patients. Besides the highly equipped ward where intensive care is in progress, we shall need accommodation more like a hostel. We shall also need day hospitals where people can obtain hospital care without becoming resident patients. Cowley Road Day Hospital at Oxford has been designed primarily for geriatric cases and there is also a rest home to which ambulant patients can go after they are discharged from the acute wards. This sort of accommodation will form part of most future hospital projects, particularly in view of the fact that we are going to bring a part at least of the mental health service into the general hospital.

We in this country think in terms of the patient, and of nursing and medical groups. We try to design the hospital round a concept of human organisation, whether it be a 20-bed nursing unit or the out-patient clinic organised around a small team of doctors. We have, perhaps, been a little slow in accepting the need both in the interests of efficiency and far more important in the interests of hygiene and safety, to centralise the less personal services such as sterilisation, laundry and so on. In America, as you will be hearing in a few moments from John Weeks, there has been no such hesitation. My own personal belief is that the concept of design round the human group of manageable size is the right one and that we should stick to this, but I believe that it is possible to combine this with a high measure of centralised services. I believe that every function in which human beings are primarily concerned should be decentralised, sometimes more so than it is today. But centralised supplies—linen, etc.—can be made available centrally without impairing this concept.

[1] Oxford Regional Hospital Board (1957): 'Trends in Medicine'.
[2] Goodall, J. W. D.: 'Early Ambulation: A Survey of Hospital Practice'. LANCET, 1951, i, 43–6.
[3] McKeown, T. *et al.*: 'Institutional Care of the Mentally Ill'. LANCET, 1958, i, 682–4.

Developments in the United States of America

by John Weeks

IF YOU GO TO VISIT a hospital in England, the chances are that even if your first approach is to the secretary, you will be shown round by the matron. As you go round the hospital you will meet patients and the matron will smile at them all and speak to one or two. When you have finished your tour you will be given an enormous cup of tea in her office. In Europe you will be shown the operating theatres by the Professor of Surgery and the wards by the Professor of Medicine, and you may not meet a nurse at all. If you are a patient, no one will speak to you.

In the United States you will almost certainly be shown round by the senior administrator who will introduce you to anyone in the hospital you wish to meet, and they will talk to you intelligently and at length about their work. If you see a patient, everyone will be polite to him, but patients won't be talked about much. You will get a paper mug of coffee served in the administrator's office and an excellent canteen lunch.

In small things there are signs of a fundamental difference between hospitals in Europe and the United States. In American hospitals there is free and unembarrassed communication between the people who work the hospital. There is no queen-mother figure like the matron, remote but kindly; nor god-like figure such as the Herr Professor, immensely responsible but fundamentally unapproachable, and the administrators do not seem to be regarded by the staff of other departments, as they sometimes are here, as vaguely *anti*-figures, agents of some unsympathetic power. Heads of departments do not acquire, by virtue of their position, any traditional accretions of privilege or power: and so communication between them being free, responsibility can be distributed rationally without doing violence to hierarchical principle. The atmosphere is very like that of an industrial concern and indeed Americans often talk of a 'health plant' instead of 'hospital'.

The resulting flexibility in organisation has made possible far more centralisation of services and standardisation of accommodation than is common in Europe. The Director of Nursing (the word 'matron' is not used) does not *mind* if the nurses are

no longer responsible for counting every piece of linen, nor if all sterile supplies are made up and distributed from a central point. Nor does the ENT surgeon demand a complete floor of the ward block to himself, and his own theatres as well, if the patient load does not merit it.

As long ago as 1920, the superintendent of the Presbyterian Hospital in Chicago suggested the abandonment of ward kitchens and serveries and also the provision of a central linen service. Centralisation of services has now gone much further. On the other hand, while hospital departments have been becoming less self-contained, patients' rooms have been getting more so. The process of abandoning the open ward in favour of rooms for one, two or four patients, each room with a w.c. opening off it, began also in the 1920's, and is universal in new hospitals. The effect has been to shut off the patients, as consumers, from the business and productive machinery, which has developed independently.

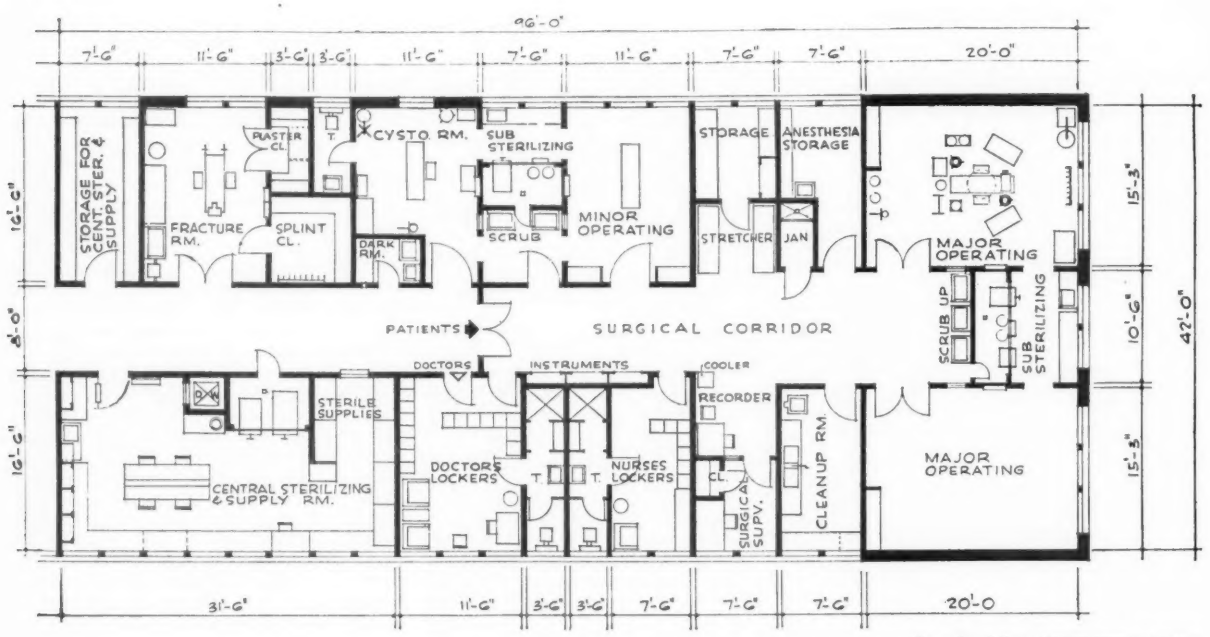
The first post-war American hospital to give physical expression to this separation was built in France. Shortly after the war, the United States Government commissioned, as a gift to France, a new 300-bedded general hospital at St. Lo, in the Cherbourg peninsula. This has been designed by Paul Nelson, and after many delays was completed last year. All departments other than the wards and nurses' home are in a mainly single-storey slab largely top-lit and spreading over a considerable area. This slab has indentations and courtyards which allow natural light into some of the departments but the internal organisation is exceedingly complex. Above the slab, the multi-storey ward and nurses' home though cranked is essentially linear, a long central corridor with separate patients' rooms on the south and service rooms on the north. Lifts for services and passengers to the wards are grouped at a single point. There are oval operating theatres which are in a sense un-American. Eccentrically-shaped theatres have been developed, particularly in France, but so far as I know none has ever been built in the United States. Paul Nelson designed them to give better lighting and ventilation, but they remain a personal solution and unlikely to become a standard; it is toward the most simple and general solutions that American hospital planning is now tending.

In 1946, Public Law 725, known as the Hill Burton Act, was approved by Congress. This Act made Federal monies available to States to carry out surveys of existing hospital facilities and to develop programmes for construction. It also provided for one-third of the cost of such projects to be met from Government funds, subject to approval of the plans. The approving body is the Office of the Surgeon General of the United States Public Health Service, and in 1948 was published the first of its books *Elements of the General Hospital*. These are intended to guide architects in the kind of planning which would be acceptable for a grant under the Act and are not intended as standards. In addition to the plans, complete lists of equipment for various sized hospitals were published. The plans were not the result of original research nor did they break any new ground, but they crystallised many of the tendencies which had been developing in a period of continuous building during the war.

Figure 1 is a typical drawing from one of the books, an operating theatre suite for a 100-bedded hospital. The plan is very simple indeed, far more so than many plans for similar suites in Britain. But nothing physical is missing and assuming reasonable staff discipline the plan will work well. Altogether missing is any spark of personality, such as in Paul Nelson's theatres, or of art. The plan is utterly direct, neither elegant nor inelegant, and the only concession to geometry is that the department has the end walls on both sides of the entrance corridor in line.

The *Elements of the General Hospital* cover every department in similar detail; usually several plans of each department are given for hospitals of different sizes. A short while after the *Elements* appeared, the U.S.P.H.S. published a further volume, this time of complete hospital plans—*Plans of Hospitals for the Co-ordinated Hospital System*. The co-ordinated hospital system proposals were for large general hospitals in urban centres, which would provide for all specialties, as well as for post-graduate teaching and research. Next in line would be district hospitals, three or four to each base hospital, in small towns, providing for all major specialties, but little teaching. In small communities the hospitals would be of minimum size for efficient operation and in States with a very widely scattered population a further step was proposed: a rural clinic, five to ten beds, out-patient and emergency facilities. The nearest approach here is probably the Nuffield Diagnostic Centre at Corby.

This is one of the pages from this



Reproduced from ARCHITECTURAL RECORD

Fig. 1. Operating suite for a 100-bed general hospital, from *Elements of the General Hospital*, published by the U.S. Public Health Service

book illustrating a plan for a 100-bedded district hospital with out-patient facilities. The perspective illustrates, one cannot say dramatically, perhaps poignantly is a better word, the difficulty of the next stage after planning disparate departments—that of designing a hospital. But the two U.S.P.H.S. books, new editions of which appear regularly, have succeeded in raising the standard of hospital planning in the United States; and as their acceptance is not mandatory they have not inhibited enterprising work even where Federal assistance has been sought.

A large part of all hospital building in the United States is privately financed and is not subject to Federal planning approval. In this field most of the design is routine, but there is some experimental work. Figure 2 shows a hospital in which the wards are circular, the beds with their heads to the outside wall in rooms for two and all the ancillary rooms islanded at the hub.

The round hospital ward has a long history. It was first proposed in the 18th century and several have been built, including one in Birmingham. It is an attractive notion—short internal communications, ease of supervision, smallest perimeter for the amount of space enclosed. In this form, however, the centre being solid with ancillary rooms, patients have even less view than in an old-fashioned Nightingale ward. Figure 3 shows one of the rooms. Over the door is a television set, so that those patients who get tired of watching nurses go about their business have something else to look at.

Undoubtedly the most fascinating development since the war in the United States is the hospital system built by the United Mineworkers of America Welfare and Retirement Fund. The hospitals are financed entirely from union funds. They have been built in an area where there were virtually no hospitals before. The development spreads 150 miles through part of the States of Kentucky, Virginia and West Virginia where mining is the only industry. The country is mountainous, tree-covered and, in the main, roadless. It looks now much as it did when Daniel Boone had it almost to himself. The U.M.W. Association found that competent physicians could not be induced to practise where neither hospital nor other facilities were available. There was, and is indeed, the Frontier Nursing Service, still on horseback until the roads came a few years ago, but these gallant nurses had very little to back them up.

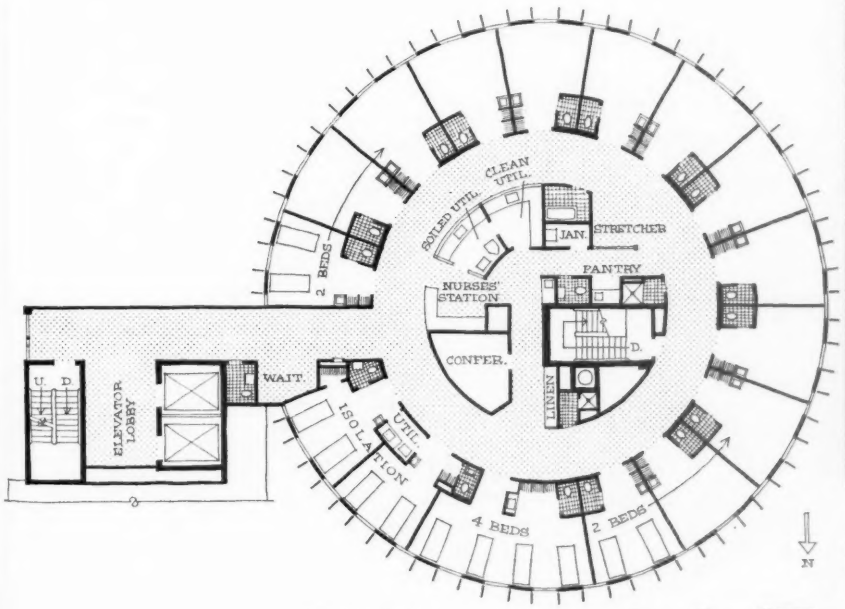
In 1950, therefore, the Association arranged for the establishment of ten new hospitals in the area to provide a service for the miners and their dependants. Construction began in 1953 and they were complete in 1956.

The ten hospitals are probably the nearest approach to the Co-ordinated Hospital System put forward by the U.S.P.H.S. in 1948. Their organisation has something in common with that of a regional hospital board in the United Kingdom and is the only place in the United States where such an organisation exists. There are three general hospitals of about 170 to 200 beds each and two of these have, under the same administrator, satellite hospitals of 50 to 80 beds each.

Central administrative control is at the U.M.W. headquarters in Washington, which also looks after recruitment and salaries which are calculated by an electronic computer, Univac. The hospitals and the Washington headquarters are linked by a direct teleprinter line, and the distance between the outer hospitals is about 200 miles. Williamson, the centre one of the three base hospitals, is the headquarters for purchasing and administration and is also the centre for plant maintenance. Each hospital has a small maintenance staff but the chief maintenance officer and his staff travel between the hospitals in a Volkswagen bus to attend to major problems.

The hospitals were designed by three firms of architects who worked originally independently, but after the sketch stage with some collaboration. The firms were Isadore Rosenfield, who designed Beckley; York and Sawyer, who did Williamson and its three satellites; and Sherlock, Smith and Adams, who did Harlan and its four satellites. Gordon Friesen, at that time senior administrator of the U.M.W. Memorial Association and now a private hospital consultant, incorporated many of his own ideas in the schemes, some of them—though common enough in industrial buildings—never before used in hospitals.

Figure 4 is Harlan hospital, the southernmost of the three base hospitals. It has 203 beds on four floors. The construction is similar in all the hospitals, a concrete frame with external curtain wall of 5 ft. wide, prefabricated storey-high units. The physical organisation is also similar in all hospitals. The ground floor, and often a lower ground floor, is given over to the out-patient department, administration and central services, largely artificially lit and ventilated. Above the ground floor slab is the ward unit, in the smaller hospitals one floor only. The physical organisation of all the hospitals has the common ancestry of St. Lo. But in most cases this has been



THIRD FLOOR

Fig. 3

Fig. 2. Valley Presbyterian Hospital, Los Angeles. Architects: Pereira and Luckman. Circular ward plan and (Fig. 3) interior of 2-bed room

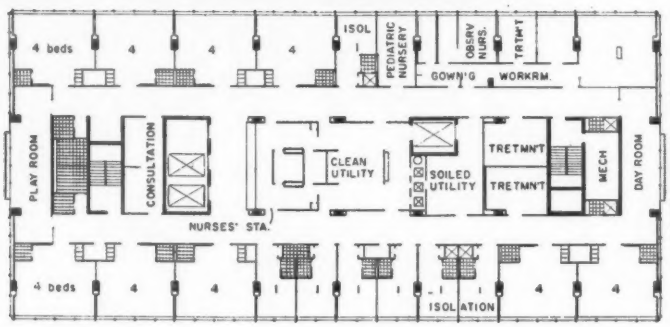
Reproduced from ARCHITECTURAL FORUM

ARCHITECTURAL FORUM

Fig. 4

Harlan Hospital, Kentucky, one of the U.M.W. hospitals. Architects: Sherlock, Smith and Adams

Service trolley in U.M.W. hospital



FIFTH FLOOR

Fig. 5. Nursing floor, Harlan Hospital

given expression in the current American vernacular. The big difference between these hospitals and St. Lo is in the simplification and concentration of the plan and dependence on highly developed mechanical handling devices.

This is the ground floor plan of Harlan hospital. There is one entrance hall for all patients and visitors. Although it looks immensely complicated, it is extremely simple so far as the patients are concerned. All three categories—in-patients, out-patients and visitors—enter by the same entrance. This is the one public door into the hospital. Immediately opposite is the counter which deals with visitors' inquiries and appointments, in-patients and out-patients. However, out-patients are referred to the out-patients' inquiry desk and they can be directed to the waiting spaces. There are other control points here and there.

Immediately behind this desk is the records department which deals with the records for the whole hospital. The only other entrance for patients apart from the general entrance is the casualty entrance for ambulances and emergency cases. There is a small emergency suite and they can go straight through to the surgical hospital at the back, if necessary.

All supplies are unloaded at one entrance and checked through a single stores reception point. There is a single dispatching office for all supplies throughout the hospital and indents from departments are received here through the pneumatic tube system. The only exception to the central reception and dispatching system is fresh food supplies which are taken directly to the main kitchen. There is one canteen for all members of the staff and visitors, no distinction whatsoever being made between the various grades.

The hospital has a central kitchen which provides food for the wards and canteen—there are no facilities for the preparation of food in the wards at all. Meals are laid up on trays, each patient having selected in advance from a printed menu his choice for the next meal—this includes such minutiae as sugar, salt and 'catsup'. The trays are made up in a central kitchen on moving belts and automatically dispatched by a vertical conveyor, known as a 'Trayveyor', to the ward floor, where they are unloaded and stacked on trolleys for delivering to the patients. The food is well covered on its journey and remains hot. At the end of the meal the 'Trayveyor' is put into reverse and unloads automatically

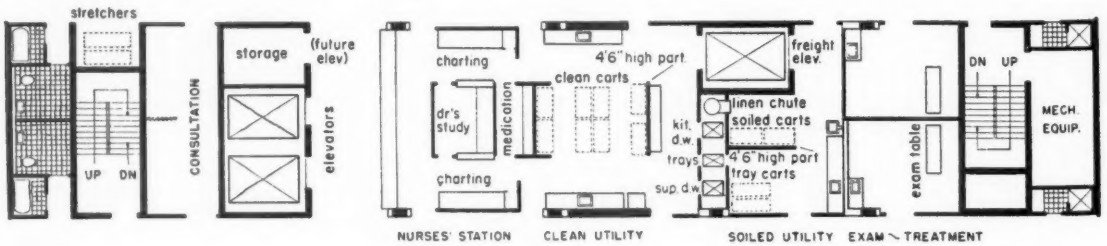


Fig. 6. Detail of nursing ancillary room core, Harlan

into the dish-washing machine in the kitchen.

The central supplies department serves each ward on a 24-hour basis. Each ward has a complement of expendable items and this is made up daily without question. Special requirements may be met at any time from the central dispatching department.

Figure 5 is a typical patients' floor at Harlan hospital. The passenger lifts arrive opposite the nurses' station, so that all visitors are easily directed. The centre of the plan is occupied by the ancillary rooms, two areas for separation of dirty from clean work. Surrounding this area is a corridor serving the patients' rooms. This type of plan is known as the 'race-track' plan. The beds are arranged in four-bed rooms, each with its own w.c. which is used also for bedpan emptying and washing. After washing these are sterilised centrally. Each patient keeps one in his locker in a sealed bag.

There are no two-bed rooms, the next category being single rooms for patients needing isolation on medical grounds. In all the hospitals 20 to 25 per cent of such rooms are provided, some of them having, in addition to their own w.c. and wash basin, a shower compartment.

Day rooms are provided at each end of the block. These can only be used by patients who do not need much supervision and on my visits I did not see them being used much. Patients probably have less inclination to use such a relatively isolated room when they can sit in their bedrooms amongst their friends.

The arrangement of specialties on the floors is quite flexible. That is to say, on any one floor there will be both men and women patients and two or more specialties. This is particularly valuable in small hospitals if the maximum use of the beds is to be maintained at all times.

Figure 6 shows in greater detail the utility area at Harlan. The centre of ward administration is the elaborate nursing station. This consists of a long counter with a desk below it, equipped with telephones, pneumatic tube station and facilities for charting. In the area behind is a small room in which doctors may dictate notes and letters to a central transcribing department, and there are also conference and interview rooms.

A floor clerk has her office as part of the nursing station counter. It is she and not a nurse who receives the patient calls on the two-way loud-speaker system and deals with them unless it is necessary for a nurse to perform some service. Her other duties include many which in England are usually done by nurses.

The utility room area is unlike any other in Europe and at present unlike any others in America in that no cupboards are provided. All stores are kept in trolleys with shelves and drawers which are restocked each morning with a complete complement of linen, medical and house-keeping supplies. In addition to the 'Trayveyor' connection to the central kitchen, there is a supplies lift connected directly with the dispatching department and a dirty linen chute. The principle of having totally centralised supplies for the wards has worked extremely well and losses are negligible—except that during the first weeks after the opening almost all the thermometers disappeared.

The exterior view of Harlan, like most of the others in the chain, reflects the crispness and certainty of the internal organisation. There are the wards in their glass box and there, spreading over the ground, are the out-patient departments and central services. In the hiatus between the two are the canteen and the kitchens. There is no doubt that the Mineworkers' hospitals are extremely efficient. Indeed, most of the thought which has been given to their design has been on the organisation, production and economy fronts. The patient is rightly unaware of most of these efficiencies. He has a well-designed, self-contained quiet room, with a view, and the nursing is doubtless as efficient as the rest of the organisation. Would we like to have a lay person on the other end of our bedside buzzer, between us and our nurse? This particular communication problem, one of the most personal from the patients' point of view, was not considered a problem by anyone I spoke to about it.

In Britain I think we can learn a lot from these hospitals: our service departments are inefficient by comparison. We waste a lot of space providing small self-contained empires for specialties which do not merit them. We have too many ways in and control points, and we have sterilisers and store cupboards in almost every room in the hospital. In the Mineworkers' hospitals, the needs of efficient organisation drive right through as far as the door to the patient's room. Our work has usually started with the patient and we are only just beginning to move below stairs. Here we can profit by the American work. But I suspect that for us the patient's needs are to be interpreted on a broader basis than as the recipient of a service. It is not very satisfactory for a patient to feel cut off from the community in which he is existing. It is a little gloomy if every call by a nurse is for business purposes. Perhaps the matron's smile, so to speak, is important.

DISCUSSION

The Chairman: I am sure you would wish me to thank Mr. Weeks for so ably surmounting all his handicaps. We have enjoyed his lecture very much.

Now I am going to ask Dr. Godber if he will be good enough to open the discussion. The Science Committee has started something fresh in the meetings of the R.I.B.A. They do not favour the idea of votes of thanks proposed and seconded, but I hope to express general thanks on your behalf after the discussion. I think that helps to get down to business and promotes the usefulness of the meeting and brings out impressions and observations.

We have with us tonight doctors, many architects and some administrators. If each will take a share in the discussion it will prove to be most useful.

I will now ask Dr. Godber to give us his impressions.

Dr. E. G. Godber (Deputy Chief Medical Officer, Ministry of Health): First, I should like to say thank you to the Science Committee on behalf, I am sure, of the doctors and administrators and—indeed—of all the non-architects present for letting us be here.

It seems to me that the most important thing that the Nuffield unit has to ask itself is not how do we design a hospital but what do we want a hospital for? We do not want a hospital in order to take in a lot of the local population and arrange them in beds along the walls where they will obediently do what the nurses or doctors tell them. I put the doctors second, of course.

The unit did set out to try to find out what was needed, and I think they made an excellent start. But it is only a start, as has been emphasised by both these papers. A great deal more waits to be done. Thinking on the planning of these hospitals is probably moving faster now than it has done at any time in this country before.

The point has been made that medical requirements have changed very rapidly, even within the ten years that the Health Service has been in operation, and methods of medical practice have changed. The point was made, I thought, very gently by a non-medical team that little separate empires should not be allowed to develop. In fact, we all know that there are in all hospitals too many separate empires, not only medical and nursing but of various other professional kinds. And, of course, in future we must try to produce a hospital that will lend itself to changing methods, medical, nursing and other.

Reference was made to our realisation that cross-infection in hospitals is still a problem. Indeed, it is a worsening problem in many hospitals.

But we must try to retain in our hospitals the humanity which I think Mr. Weeks was meaning to underline when he talked about the matron's smile. Of course, matrons do smile, but a lot of our people perhaps smile rather more often, at any rate, in the presence of the patients. After all, they have more chance.

I think much that has been attempted by people like Professor McKeown in trying to work out what we are trying to do within the hospital community needs encouragement and very much further development.

I know it has been a source of complaint in the Health Service that we have not had enough capital to spend. Well, if we had had all the capital we wanted in 1948, you just think what we should have expended it on and what an awful incubus we should have put on the backs of succeeding generations! We inherited ourselves things that were bad enough. I would rather we spent small sums temporarily altering what we have than build all the wrong things

in order that they may plague our successors.

Mr. Bryan Westwood [*F*]: Why does it take ten years to produce a hospital from the start?

Mr. Llewelyn Davies: Hospitals are very large buildings. They take a considerable time to plan and a considerable time to build. The capital grants which are forthcoming for building them only permit of building them in stages. I think that is the basic reason. I did not say ten years: I said five to ten years.

Probably you are all aware of the recent rather interesting inquiry undertaken by this Institute as to the length of time it takes between starting to plan a building and being ready to build. Over the whole field of building this is in the nature of one to two years before you start building at all. So hospitals are not really exceptional as compared with other buildings except insofar as they are rather bigger, rather more expensive and have more often very distinguished and very opinionated people concerned in their design.

The Chairman: If I can add to the answer, I agree largely with what Llewelyn Davies has said, but there is also the importance of the briefing. Now that may be a nod to anyone who wishes to put the cap on, but I think this is one of the things that delays the early stages of planning: incomplete briefing from the authority and largely from the medical officers in stating their requirements.

I feel I really have to make that point, because I am sure it is something that all architects in practice and certainly the regional architects are faced with. They have great difficulty in getting conclusions from the management committees and from the medical officers reporting to the management committees.

Mr. Alister MacDonald [*F*]: I must say I was very agreeably surprised that Mr. Weeks appeared to praise very heartily the approach of Gordon Friesen and some of the other American people. Some of us here had the advantage of going to Germany recently on the International Hospital Federation tour, and we all saw some of the modern hospitals that the Germans have had the chance of erecting. Some were good and some were bad, but all were extraordinarily interesting.

But to my mind one of the most interesting experiences was meeting this man Friesen who was there and who, as Mr. Weeks has rather indicated, approaches this problem from what one might call an industrial angle: the problem of servicing the wards, the problem of looking after the patient's ordinary needs. This idea of having reversible moving platforms so that you take trays one way up to the beds and the other way back to the washing-up machine is extremely appealing to many of us. The nurses are over-burdened, I think, with duties which really fall outside their true province. It is hard enough to get nurses to fulfil today their real nursing vocation, and the more we can take away from them of the other duties, purely of what one might call 'skivvy' types, the better.

Mr. Weeks: I am glad someone else has met Gordon Friesen. I met him and had lunch with him. I don't think I was able to say more than half a dozen words. He is a very powerful personality.

I did raise one point with him. I could not let him carry on any longer with the theme he was pursuing—that every patient should have a room to himself. What I was trying to say was that in American hospitals the patients are being pushed further and further into isolation, while the business of running the hospital becomes more and more organised and more and more involved. I do not think the patient wants to be in a single room all the time, or not all the patients. During my recent stay in hospital, I was nearly driven mad in the last month, when I was in a single room by myself. The telephone is not good enough: one needs the other chaps.

Mr. Llewelyn Davies: There is one rather amusing point on this tendency in architecture which John Weeks has been telling you about. It brings up problems on the technical front in observation of the patients. If they are all in single rooms how do you know what they are getting up to?

I had a visit the other day from a member of a leading United States electronic firm who specialises in intercom in Ohio. He explained that the business of relying on the patient to ring up and say he was dying was proving inadequate. So they now have a passive patient monitor. This is a device which records movements in the bed springs at the nursing station, an invention of terrifying possibilities.

Dr. R. M. Shaw (Principal Medical Officer, Ministry of Health): I would like to mention the human relationship problem, because I am quite sure it is one of the most important problems that we have to look at in this country.

I agree entirely with Mr. Weeks that one has to go in for a lot more centralisation of supplies, sterilisation and the like, food and services. But we cannot, I am sure we all agree, mechanise the human relationships, nurse/patient relationships. And I think it is interesting to note that there is a move, it seems from American literature, towards what I think they call progressive patient care. You provide, I think, three zones of patient care, as they call it—the intensive nursing zone, the intermediate zone, and the self-service zone. The self-service zone is for the patients who can fend for themselves most of the time. They are expected to get up and have their meals in the cafeteria. It is the intensive nursing zone that I should like to say a few words about.

It is in this zone that they put the most seriously ill patients, whether they are post-operative or otherwise. The Americans themselves seem to have designed these units more on the type of open wards, where the nurse has direct supervision of the patient. So I am sure in this country we must not lose sight of this human relationship.

The Chairman: We have heard of the smiling matrons. Could we have a word from a matron or member of the nursing profession?

Miss P. O'Sullivan (Matron): On the subject of small rooms I have a comment to make. It is quite true that many patients prefer to be with others when they are sick. But they do dislike being in a very large ward, and a small unit of four is often acceptable to them.

On the point that has been raised of inability to observe them, this always presents a great problem to the nursing profession, and it means an increase in staff. On the other hand, the intensive nursing zone is a terrifying prospect. It is all right for the patient who has never been in hospital and does not realise he is in an intensive nursing zone, but it is rather frightening for the patient who is deteriorating and has to be transferred to it.

I have not yet quite discovered why all the great brains that are arrayed for the design of hospitals have not found it possible to have small rooms for four or one and a small television arrangement which would reflect what the patients were doing in the central control room where the nurses would be. I should like to know if that has been thought of.

Mr. Llewelyn Davies: All I can say is that 'Big Sister' is not watching you yet! I do not think this point about the intensive nursing zone is a very important one, because in a way this is the other side of the penny. If you are going to shut people up away from nursing supervision, as the Americans are doing, there comes a time, as has been said, when the nursing supervision is inadequate.

You can see in Johns Hopkins a unit that is really terrifying. The room is about the size of this hall and it is jammed with beds with patients of every age, sex, creed and colour in an acute state of illness in one vast space. It is the other side of the penny of the demand for privacy. It is the wheel coming full circle. You demand privacy and you get hospitals with such tiny wards that you cannot be observed. Then you have to establish this terrifying intensive nursing zone. It is a real warning against pressing the individual isolation of patients too far, if we can avoid it.

Mr. Donald A. Goldfinch [*F*] (Architect to the Birmingham Regional Hospital Board): We do appreciate the work the Nuffield unit have been doing on research to supplement the work of the Ministry and of our own R.H.B.'s Architectural and Medical Departments. It has been a great help to us in the regions. I was particularly interested to hear your remarks regarding the changes that have evolved since our discussions in 1954. I call to mind that the out-patient department was also discussed

then. I feel the present tendency is to locate the out-patients' department as one of the specialist departments of the hospital rather than the trend which showed itself in 1954 to detach it from the hospital and to centralise the out-patients' department at the centre of the town, while putting the in-patient hospital on the periphery.

That change seems to have come about and is showing itself in all current planning. In most of our hospital development plans in this country we seem to have fallen in line with the point of view expressed by the medical staff that both in-patients and out-patients should be on one and the same site.

A point made in our 1954 discussions was that planning of the individual departments should permit of the maximum flexibility. The current tendency is to design a standardised ward unit suitable for each or any specialty as far as possible. These units may be located one above the other with convenience, the specialised departments being left at the same time in single-storey buildings capable of internal partitional changes rather than linear extension or expansion. Flexibility really goes far enough if we can have that freedom of internal replanning, and horizontal expansion of specialist departments.

The Belgians have gone too far in the design of their new hospitals. Several new hospitals are coming into use where the whole floor area can be re-planned to its full width. There is a duct or sub-floor within which services can be run to any point if it is wished to make a change. It must have been achieved at great cost. I am sure the maximum flexibility we require is a reasonable amount of space to repartition where it is likely to be necessary, and not in those sections of the hospital which are likely to remain suitable for their original user for many years.

I was interested in the remarks on intensive care. This has been given much attention by my own design team and committees during the past few months in connection with the design of the new hospital at Coventry. It means reorientating the whole hospital plan if you are to provide an intensive care unit planned en-suite with a couple of other ward units for less intensive care. But is the nursing staff going to get all the training it should if the trained staff are to be used to look after the intensive cases, the semi-trained and less trained staff being left to deal with the other units? Are they going to get the cross-section of nurse training that is required?

The Americans have, in their intensive care facility, reverted to the slightly larger ward of 8 to 20 beds. I think this is a good move and it confirms the need to get back to a slightly larger concentration of patients where intensive care is required. Right throughout the studies of work in Spain, Germany, Belgium, Denmark, Sweden and Switzerland I find the use of the 4- to 6-bedded ward is retained as the maximum size of the ward within the nursing unit, whereas in this country we are thoughtfully trying to plan in groups of four beds to provide possibly 12 to 16 beds as a ward of economic size within the nursing unit.

If the greater degree of patient isolation in America where single rooms are common has so increased the problem of nurse care as to necessitate a larger concentration of patients for intensive care, then surely we should be wise to avoid copying the small bedded wards of the continental planners?

Let us also not lose sight of the humanities of hospital design. Is it really for the benefit of the patient that large numbers of very ill and moribund persons should be collected together?

By all means, however, we should welcome the labour saving mechanisation and improved meal, and linen, service that may result from an application of commercial planning practice of the hotel type.

Mr. S. E. T. Cusdin, O.B.E., [*F*]: One of the biggest troubles is that we all use the word 'hospital' which might mean anything from a short-stay hospital to a large teaching hospital. We do not automatically know the size of the hospital even when given in a stated number of beds.

Dr. Godber reminded us of the Ministry's inheritance of a hospital system which was not based on any plan of requirements or with co-ordination of any kind. Hospitals grew where people were lavish enough with their funds to provide facilities in their particular neighbourhoods. For that reason, we have a series of hospitals not related to want or need or necessity in the centres where they are situated. But they are there, and there is a tendency to assume because they are there that they are in the right position and can be extended or enlarged or re-orientated or remodelled.

If we consider the New Towns, and this is an interesting point, there are certain facilities that can be met according to a formula—so many primary and secondary schools, per thousand of population, and so on. But when it comes to health services the statement of requirement is still very much nebulous. It seems to me that the New Towns are ripe for the boldest of experiments.

We ought to be able to ensure that in the New Towns we will have a service based on a concept of a planned hospital service and that the scope of its work would be understood from the very beginning. We would not, I suggest, attempt in every 100-bedded hospital to try to cover the complete range of facilities available to medical science today. We should use the hospital for a given purpose which would be consistent with the economy of the place, the number of consultants we could establish in the region or district covered by the service, the number of nurses we could attract and keep in that neighbourhood, the administrative, functional, and domestic staff who, I fear, are going to be fewer in our New Towns. The latter will have the attraction of local factories to work in, and this will make it very hard to get them to do the more unpleasant duties of a hospital, when they have so many competitors for their services.

If we could just take one or two of the New Towns and introduce this concept, when everything is planned, from the general practitioner to the hospital services, with its district hospital and arrangements for serious cases to be referred to say the Regional Centre we could make an advance towards a comprehensive service.

I would like to recommend the Science Committee to get in touch with Mr. G. A. Friesen (Hospital Consultant in U.S.A.) and invite him to give a paper here on his original ideas on business efficiencies and organisation in hospitals.

Mr. M. Sergeant: I would like to ask any who have had experience of visiting modern hospitals what has been done towards solving the problem of visitors, particularly in the larger city hospital.

As far as London is concerned, as you all know, the nightly visit and the week-end visit and the dreary queues that form must be an embarrassment to the medical staff. As far as the patient relationship goes, it is most important. I have not had the opportunity of seeing any modern specially built hospital, but in our old hospitals the whole thing seems to be a makeshift, make do and mend affair. On the plans shown here there is no indication of any thought being given to that.

Mr. S. W. Barnes (House Governor, King's College Hospital): I am merely an administrator, but I should like to answer this question about visitors. It has seemed to us that the proper place for the visitors to wait is the out-patients' hall. Fortunately, patients' visitors come in the evenings and at week-ends when the main waiting halls are not fully occupied. It seemed to us in our planning of the hospital that we would try to enlarge on that, and so I would commend the thought that since we are all becoming more and more concerned with the cost of hospitals, we should try to have these big rooms available for many purposes. I think myself we can very often deal with the patients' visitors by providing arrangements in the out-patients' halls.

It did seem to me that in the discussion on ward units one point has been overlooked. In the large general hospital we ought not to overlook the increasing traffic in the wards. In this country we often divide our ward units first into male, female and children. Duplex wards where both male and female could be treated in the same ward unit would be very valuable indeed, because we are not able in general to allocate the wards very neatly—one for ear, nose and throat, one for this or that other specialty. It very often happens that teams for four or five specialties have to visit a ward, and the traffic in the wards could be reduced if we split the ward units into specialties and not first into sections.

Another little thing I have a bee in my bonnet about is flexibility. It seemed to me that the conference four years ago talked a good deal about flexibility and I

think Sir Arthur Stephenson said something about this. It seems that the best thing we can do is not to use the whole of the site. I always think it is very important to see that a third or half the site is left vacant for the needs of the unknown future, because hospitals are of course going to last a long time.

I am glad thinking has altered about what I believe Mr. Llewelyn Davies calls the matchbox and muffin. It did seem to me that while it was a good thing to have wards stacked, it was quite wrong to scatter the out-patients' department, pathological laboratory and all the special services in bungalow buildings round the site. It was an extravagant use of the site and did not accomplish what we were after.

Everyone knows that when we try to alter a bungalow building, it is often almost as expensive as starting on a clear space. If you want to put a ward or anything else on top of the bungalow building, you ruin the whole of the original ground floor. That is my experience.

Cost was not mentioned until someone raised it from the floor. It seems to me that if we can save on a big £100,000 or £200,000 building scheme by close attention to cost, we are doing something useful. After all, the primary requirements of the hospital are doctors and nurses, and if we are extravagant not only in our capital cost but in our maintenance cost we are really depriving the Health Service of the people who look after the service—the doctors and nurses.

Mr. Robert H. Chapman, A.I.A. (New York, U.S.A.): There has been a lot of discussion about the matchbox and muffin. I should like to add a postscript about what is happening in the muffin. I think Mr. Friesen's latest effort is a hospital for South West Washington. If it is not open yet it soon will be, and everyone should look at it. Everything is centralised, central supply department, stores department, laundry, pharmacy. In another group are the operating surgery, X-ray department, and so on for in-patients. There are two units which are no longer broken down into separate individual items, as they were in the United States Public Health Service standards.

If you find everything does not meet your need, you have the additional advantage that you can develop the more modern methods. Perhaps it is good in this country to look at that which was developed five years or ten years ago in the way of central supply departments, and to see what is coming next. The next step is the big units with the barriers between individual units broken down.

Mr. Weeks: In connection with central sterilisation departments and the remarks on theatres, I saw in a number of places in the States a system which I think will solve this problem. I do not think the sister particularly wants to sterilise the instruments herself if she knows the sterilisation elsewhere is 100 per cent efficient. What she wants responsibility for is the selection of her own instruments to the individual surgeon's requirements. In the Mineworkers' Hospital this is done by theatre personnel in the theatre, but the packages having been made up are sent to the C.S.S.D. where they are processed and delivered very quickly back again. This does away with the necessity for a double array of sterilisers, one in the central sterilisation department and the other in the theatre.

I asked a number of people whether this was satisfactory and was told by surgeons and theatre staff that it was indeed very satisfactory.

Someone raised the question of visitors and the necessity for very large halls. In the Mineworkers' hospitals they have free visiting except in the morning. The whole of the afternoon and evening visitors come and go as they wish. Because the visiting time is free and widely spread, they do not have any trouble with enormous numbers of people. They seem to turn up in ones and twos and go up to the ward. As the patients are in rooms of four or six beds there is no difficulty and the visitors get in to see them. I do not know whether that has been tried in this country, except in some paediatric wards.

Mr. Chapman mentioned Gordon Friesen's new South West Washington hospital. We have seen the plans and they are extremely impressive. There is one servicing department which deals with and processes all the supplies for the hospital. It was already beginning and it has been taken further by Friesen in the South West Washington project.

Flexibility is remarkably well dealt with in the Mineworkers' hospitals. The ward floor may have a large number of beds, 50 or 60. Both sexes are accommodated on a floor, and if necessary, more than one specialty. The main nursing station is often backed by a sub-station somewhere else on the floor, so that it is possible to separate nursing teams for each specialty with their own post.

In this country the sister is queen of the ward and she does not want to have to deal with more patients than she feels she can really know personally. This is overcome in the States by team nursing. There is a floor supervisor something like a sister but with more administrative responsibility and less responsibility for individual care of the patients. She has under her a number of team leaders and they deal with quite small groups of patients. The number of groups, each under a team leader, may be quite large, and in any ward unit, therefore, there is a very great degree of flexibility.

Mr. M. C. Tebbitt, C.B.E. [*A*] (Superintending Architect, Ministry of Health): The units that Mr. Weeks has been talking about were mostly the Miners' Welfare Association buildings, which provide a particular type of service. They might be more closely allied to the National Health Service over here than any other form of hospital care in America. Therefore, in a way they are not typical. The question of room size and individual rooms and large rooms is perhaps not quite representative of America as a whole. One of the reasons for so many single and two-bed and four-bed rooms there is the insurance regulations which require this.

On the question of doors and the patients getting so tired in their single rooms and having to watch the nurses, I can only say it is not purely the patient. Everybody in America seems to leave the door open, anyhow—the staff, the surgeons, everybody. I think there must be an equal attraction for the nurses on the medical side as on the patient side.

The Chairman: Mr. Howitt, the architect for the new St. Thomas's Hospital might like to speak.

Mr. W. Fowler Howitt [*A*]: Mr. Llewelyn Davies has described various tendencies towards a reduction in the number of wards. The development of the out-patient departments, in particular the provision of minor operating theatres and proper recovery areas, will enable many more people to be treated as out-patients who at present have to be 'admitted' to the hospital. I suggest that this could be one of the main factors tending to reduce the number of wards which we have to provide.

If this policy were accepted nationally, it would mean that in all the larger hospitals, including the teaching hospitals, the out-patient departments would continue to grow extremely rapidly, not only as prodecures and techniques become more complicated and require greater size and scope of apparatus but also because the number of cases to be treated would greatly increase.

With reference to the day hospital idea, I should like to know if the degree of specialisation now taking place in medicine and the regular use of pathological and X-ray services as part of diagnosis does not necessitate a much larger organisation than is provided by these small units.

Comparing the Swindon and Slough hospitals, is it really right to spread out the wards on the ground? One speaker has made a plea that the buildings should not completely cover the site. With that one must agree, but I would go further. With the possible exceptions of the smaller specialist hospital, I suggest that one should not spread out the wards as a matter of design policy when there is a considerable chance that the out-patient buildings are going to spread. There must be a limit to which this expansion can take place on the ground and still save time in the hospital.

I agree with practically everything that has been said about centralisation and the great need of equipment to aid both medical and administrative staff in their tasks. I am a little doubtful whether the centralisation of purely medical procedures can prove very satisfactory in this country. I have a particular interest in a teaching hospital and my view is naturally affected by the emphasis on teaching. Complete central

supply, in theory, is economical, improves standards and makes for efficiency all round, but it does not give the staff a chance to become familiar with the necessary procedures in the same way as is possible with existing practice. We can go a long way towards it, but I think we have to be careful about the overall centralisation of medical procedures, for example, theatre instrument sterilising, as opposed to fluids, stores and soft goods which combined with the use of pheumatic tubes, conveyor belts and many other systems can make life so much more pleasant.

It is not for me as an architect to defend Miss Nightingale or the nursing profession. There was a modified criticism that she put planning in a 'straightjacket' and that may have been so. She also put nursing into the same sort of 'straightjacket' and despite the group nursing and other experimental systems which have evolved, I still think there is a good deal to be said for the individual attention of the nurse to the patient. The insistence on good nursing is of vital importance. We should be very sure before breaking down this old established and tried practice for a theory of spreading the load on the nurses and reducing the individual attention given by the sister or in fact anyone down the line of command in the nursing profession. I support Mr. Llewelyn Davies's theories on planning but remain unconvinced on the theory of collective nursing.

Mr. Barnes has raised the matter of cost and I consider maintenance costs to be one of the unsolved problems. Much of the plant and a good part of the building is in use 24 hours in each and every day, breakdown of service may be fatal and wear and tear on everything is extremely heavy. I feel a great deal more research has to be done on the equipment and materials, not only for the services, but also for the building fabric and finishes and I would like to see the Science Committee and other interested bodies make some special approach to the sort of conditions which hospitals should provide.

The problem of noise has not been mentioned so far. It is filling some of the correspondence columns of the newspapers at the moment. Its absence in certain areas is very important and its presence may seriously affect the feeling of privacy of the patient.

A suggestion has been made of television as a means of communication between patient and nurse. I think it could only be a poor answer to the problem compared to control by direct vision and hearing. My own experience of an experimental partitioned ward indicates that a successful compromise can be achieved, allowing good control by the nurses and providing the patients with more privacy than can be obtained in the open type of ward which I think most of us now agree is not satisfactory either for patient or nurse.

Mr. Llewelyn Davies: I absolutely agree that the out-patient side of hospital work is expanding. It has been our experience in every hospital with which I have been associated during the process of design that the out-patients' side has had to be added to substantially. This is one of the main reasons for keeping it on the ground floor. You can add to the ground floor once it has been built much more easily than to a department on an upper floor.

About these new developments in the Health Service we must not be too dogmatic. We do not know how these things are going to work. We have to experiment with them. I think what I meant to say was that in most of the hospitals of the future we shall have a group of patients who are receiving treatment as out-patients rather than being resident. Facilities falling into this category are day hospital facilities. We are certainly going to need them for mental health patients and geriatrics. They are things which come into our future designs.

Old-established theories I am against upsetting: they are often splendid. But if they were established a long time ago to meet social and medical problems—say 100 years ago—they can be looked at now and then, perhaps once every 100 years, to make sure that the situation has not changed and that they do not require some modification of the general practice, if not the fundamental theory.

I am very glad noise has been mentioned, because this is an important and interesting subject. Unfortunately, in one sense, we may have to register a set-back in the recrudescence of the problem of cross-infection. Five or six or seven years ago I think most of us were pressing for the introduction of absorbent materials in the hospital with a good deal of support from bacteriologists. We have put certain absorbent materials into some of our units, again with bacteriological blessing. The first report from the patients at our Musgrave Park unit consists almost entirely of their immense pleasure in comparison with their previous experience of normal hospital conditions. There is no question that this is a great amenity. But we are going to have difficulty in the future in finding acceptable acoustic absorbent materials. Fortunately, there is a material known to most architects, an absorbent material covered with an impermeable plastic membrane, which may solve our problem for us.

Mr. W. A. Guttridge [*F*]: Referring to the time it takes to plan a hospital, one of the snags in our democratic nation is the committee. You have a monthly planning committee which is trying to plan a hospital. It is possibly differently constituted each time it meets according to who attends. Five years soon slips by when monthly meetings are held and by this time half the members are dead and you have to start again.

While it is interesting to hear about hospitals abroad (and most of us who work on hospitals are privileged to see them), we must not forget what we have in our own country. It is a common experience to go abroad with a hospital administrator and a few medical men, and the medical men see something which they say is a wonderful idea. The administrator tartly replies: 'If you had bothered to cross the corridor in your own hospital at home, you could have seen the same thing there!' This applies to the Mineworkers' hospitals. The Westminster hospital in London has also one entrance through which everybody goes other than staff, stores and casualties. If anyone is interested in seeing how it works, I am sure they would be welcome. Many visitors, especially from the United States, have remarked on the absence of fuss and congestion in that entrance hall.

Another hobby-horse of mine is the cost of achieving theoretical perfection with artificial ventilation. This was shown recently in an article in the BRITISH MEDICAL JOURNAL sent to me by a client. I forget where it was but theoretical perfection had been aimed at in the elimination of bacteria in a theatre. At the end of a rather long and learned article there were conclusions. One was that the bacteria had almost been eliminated entirely. The second was that the amount of sepsis in the patients was the same as before! They might as well have saved their time and money.

There are two points of detail. I would not wish to criticise the Slough plan, but I did notice there eleven small courtyards which appeared to be enclosed courts, about ten to eleven feet wide. I wondered whether they were considered undesirable or not from the stagnant air point of view. I hesitate to quote Florence Nightingale, but she would have hated them!

Finally, there is the table of comparative times for getting from one part of the hospital to another. It seems suspect to me, if I may say so. Everything cannot be next to everything else, but it can be more nearly next to everything else in a multi-storey as compared with a single-storey building, provided it has more than 200 beds.

The Chairman: On Slough, we have the architect here, Mr. Powell, and he had better answer you.

Mr. Philip Powell, O.B.E. [*F*]: I do not think I had better answer too many points. I do not want to start an argument to justify this. These eleven internal courtyards are never less than 30 ft. wide. We think it is going to be all right, and I do not think it need be sordid. I think you can see that elsewhere: there are some schools that have been built with them.

The question of times has been referred to, and these figures were not cooked. But it takes time to wait for a lift, get in, go up or down and then get out of it again.

On the expansion of the out-patients' department, I entirely agree that if you have single-storey wards it is going to take up so much of the site that you cannot expand. That is perhaps a very good reason for not having one-storey wards.

About L-shaped wards, if you have a one-storey building and you go out into a garden and have an adjacent ward at right angles to you, I do not know that it matters if you are looking obliquely 60 ft. away at what may be another ward.

Mr. K. W. F. Harris [*F*]: I was wondering whether Mr. Weeks found psychiatric patients in his group of hospitals in the States.

Mr. Weeks: Yes, there was provision for them. The wards were identical in outline with the others. There were slight modifications in the internal partitioning. In the Mineworkers' hospitals they do not provide long-term mental care, because that is already dealt with under the Government schemes.

Mr. A. S. Gray [*F*]: I think the answer to the question of time applied to tall buildings ties up a little with what Mr. Llewelyn Davies said earlier. Investigations have been made into the traffic in tall hospitals in the States, and it was found that the ordinary pedestrian traffic is greater than the trolley traffic. In one new hospital block in London for 400 beds, there are to be four passenger and two goods lifts to two bed lifts.

Another point that should be made very strongly is the danger of saddling the whole hospital service with small wards when the strength of the nursing service is so uncertain in future years. I know this mostly emanates from Sweden, but it is reciprocated in the States because of the Blue Cross scheme. When groups of architects go on these international jamborees they always say to us 'Why do you still show these larger wards?'. It seems to me that the emphasis abroad is always on the single room or the small ward even if the patient himself has never been proved to like it. In this country we have asked innumerable people, and they prefer larger wards. Modern hospital planning has emanated mostly from Scandinavia and Switzerland and the matron, as Mr. Weeks remarked before, has very little say. It is nearly always 'Herr Architect' and 'Herr Doctor'. As you know, the architect is elevated in Scandinavia to the rank of the doctor. I think he occupies too important a position.

Mr. R. Moss [*A*] (Architect's Department, South-East Metropolitan Regional Hospital Board): We have seen the thinking towards the horizontal hospital. We know that Mr. Rosenfield is doing similar work to balance the economy of construction and operation of the horizontal hospital. Is it thought that this greater concentration of central services, sterile department and so on can possibly offset the tendency to sprawl, and give greater confidence in the time figures?

It does seem to me that the central departments have tended to be centralised in the past, but now with this great urge to include the sterile department and so on, can it possibly be that the spread won't be so bad as it has been in the past and provide a greater degree of concentration?

Mr. Llewelyn Davies: I think what I meant to say is that we do increase the concentration in planning individual departments, and therefore we increase the maximum size in which the horizontal design is competitive with the vertical design.

Again it is important not to be too dogmatic. There are not many circumstances where the horizontal answer is the best one: there would have to be a concatenation of circumstances and probably other things too.

The point I wanted to make is that the tighter and cleaner the planning, department by department, the larger in all probability the viable single-storey hospital. We now think we have reached the size of about 300 beds as well worth considering, if other circumstances are favourable. But there are many ways of planning, and we need a different plan for different circumstances.

Miss P. O'Sullivan: I should like to point out to certain members of this audience that we have not stood still for 100 years. The central sterilisation room has been referred to frequently as not yet acceptable in this country. We have had this in existence in the London hospital to my knowledge since 1933 and it works efficiently.

We have heard that group nursing is a way of overcoming the shortage. That existed at the London hospital in 1933.

There is a shortage of nurses today, but it is because the demand for nursing staff has increased. In the planning of hospitals and in the expansion under the National Health Service the work of the nurses has increased. Yet hospital planning has not been designed to remove the burden on them. Centralisation would be more than welcome where it has not been introduced, but there is always resistance from the National Health Service on the ground of expense. When it is a matter of expansion on the medical side or a piece of expensive medical equipment there is rarely any argument.

Mr. D. J. Petty, M.B.E. [*A*]: I should like to ask Mr. Weeks a question, possibly slightly off the point. He has been telling us about the organisation of centralised supplies and one has the impression that there are many gadgets in the American hospitals. I was wondering whether the detailing is good and whether it is slick.

Mr. Weeks: No, it is not slick, but the mechanical gimmicks were working very well indeed, with the exception of the pneumatic tube. In some hospitals I was told this was out of operation 20 to 25 per cent of the time. But it was exceedingly ingenious and perhaps it has gone a bit too far.

It is not heroic architecture. The architects appear to have done everything in an effortless way. I think the Harlan hospital, which is exceedingly crisp, slides over a number of planning problems. The architects have put all their main divisions of accommodation into very neat envelopes, and I know from going round the ground floor that there must have been places where they would have loved to bulge, but it is not possible.

Rosenfield at Beckley has bulged. He is not obsessed by the idea of producing neat cubic envelopes. On the other hand, I do not think he has got these bulges and projections in a truly architectural way. I think this is the next stage—to make a building of any shape you like but in such a way that every part does relate to the whole and the end result is without being heroic, architecture. A hospital is not the place for heroics. Everybody working there is doing a very important job of work and the architect's predilection for significant form may get in the way. When this happens, in my view, the people who work in the hospital are perfectly entitled to tear things down should they wish.

The Chairman: I cannot tell you how grateful we are to the two speakers, and with your consent I will call the meeting to a close by asking you to express your thanks by acclamation to our two friends.

A Double-Ended School Hall

An Account of The Chartered Hall King Edward's School, Witley

by

Hope Bagenal [*F*]

SCHOOLS of course are something much more than a question of cost per place: they are also concerned with art and eloquence and the discipline of choral music, and the sense of history, and the genius of language. The editor allows me to treat of a school from this point of view. In 1954 King Edward's School, Witley, with a long humane tradition, was preparing for expansion and educational experiment and among other things wished to improve its hall. This was a large inconvenient building with a flat floor 127 ft. long. The architect for the new work, Mr. G. Dennis Sykes [*A*], of the firm of Gerald F. Jones and Sykes, asked my views, and this led to visits and discussions and led also to some useful consultations by the Headmaster, Mr. Gordon Humphreys, and also by members of the staff. Talks with the staff are valuable (I know not how it is, but often the last to be consulted in schools are those who are to teach in them), and valuable because it leads to thorough briefing. And so a theatrical stage was asked for; but also there was a strong musical current and singing classes and concerts must be provided for: then there were film enthusiasts; and at the same time lectures must be borne in mind, and classes, and television projection, and dancing. It was a sectional view of the school's activities all centring on the hall. Now some of these old halls are pretty grim. Yet a school with a long history often makes a kind of palladium out of its

hall, with its cups and engraved names and its portraits. In front of the charter painting of Edward VIth at Witley one could not neglect this aspect. The King had listened to Bishop Ridley's plea for the lost London children, listened, and responded, and endowed this school*. And often old boys will raise large sums of money for the school hall, out of genuine feeling, and this aspect cannot be ignored any more than in the hall of a college or city guild. But to this must be added nowadays the multifarious uses of an auditorium for which a flat floor and low platform are the worst things in the world. The first proposal at Witley was for a hall conversion, by means of a built up stage, and a large rear stepping, in order to lift up the back seats and give some chance of hearing and seeing. The flat floor was to be no more than 50 ft. Now our old halls have always been general purpose places, and admitted staging. The carpenters of Whitehall and Westminster spent their lives putting up and taking down staging for masques, plays, State trials, banquets. Pepys, at the coronation banquet of Charles II in Westminster hall, makes a note—'Scaffolds one upon another full of brave ladies'. A good example of this staging tradition was the Westminster School play which preserved the old layout. The stage and *scena*, the named boxes, and the stepped seating for the boys was erected in a part of the great dormitory which was 160 ft. long. I saw it in 1938 when the Phormio was acted, and measured the set afterwards (Fig. 1).

Today, in large halls, ingenious demountable staging is a perfectly possible solution. Again, music has been heard in great halls since Sir Thomas More's time; but at Witley a formative principle was admitted when the rear portion with its stepping was allocated to all musical purposes. There would be a theatrical stage at one end, and a concert area at the other. The conversion scheme at Witley was turned down in favour of a new hall. But the school approved the idea of some rear staging for a dual purpose. For concerts, seats could be reversed, and the rear staging with a portion of floor could then take a moderate sized choir and orchestra. Music performed behind a proscenium, surrounded by curtains and drapes, can prove most disappointing both for audience and players; for choirs it is specially unsatisfactory. So the principle of the double-end was granted and Mr. Sykes planned the new 'Charter Hall' as shown in Fig. 2. The reversibility of seats requires the special planning of doors and gangways. The conflicting acoustic needs, namely whether to allow a short period of reverberation for speech, or a longish period for music must be squarely faced in a large hall, or there may be trouble. What is the major risk? Which is the more vulnerable? For theatre, and sound films, and television, speech is more vulnerable in respect of a long reverberation (bathroom conditions) than music in respect of a short reverberation. Music may sound dull, but speech may be unintelligible: it is a question of a compromise favouring one rather than another. Calculations for reverberations were very roughly made to allow not more than 2 sec. with a class of 30 or so, and not less than 1 sec. with hall full. Since school halls have no carpet, and the seating was assumed at first to be steel and canvas chairs, a chequer pattern of alternate sound-absorbing, and hard reflecting, materials was applied to ceiling and rear wall. The two canopies were designed to strengthen sound at either end and avoid a dull tone. Being convex they allow some tolerance to the sound position and do not focus return sounds. This is important in a double-ended hall to avoid echoes. The plan shows a simple stage at one end; shows also the facing either way of seats; and at the other end accommodation for an orchestra of 32 and choir of 75 (Fig. 3). For concerts the audience could easily be seated longitudinally, facing each other over a centre gangway. Mr. Sykes planned a foyer, and a raised aisle for future pictures, and in the foyer may be seen a portrait bust of Edward VI, a graceful little work, done by one of the boys. The aisle is lined with hardwood given by old boys: it takes seats facing across and makes an interesting seating plan. There is a 4 ft. 6 in. forestage, very useful for Shakespeare and pageant plays, with steps at each end. For a flat floor a stage height of 3 ft. 8 in. is essential. It is no use encouraging stage composition if actors are cut off at the knees, or if the heroine, sitting on a chair, can only peep over the heads of the audience. A raised rostrum with a microphone point is very useful for the modern inaudible lecturer; and it can serve quite well as part of the *scena*, for instance in Julius Caesar. The inaudible lecturer unable to address 500 people without a gadget is a sign of the times; the more 'scientific' the more inaudible. How educationally valuable then is the oratory and attack of Shakespeare's lines, in each of which he seems to shake a lance, as brandished in the eyes of ignorance. How useful for schools to teach how to speak audibly, whether in the interests of science or the arts.

The hall has now been used for two terms. When we visited it we found Mr. Nield, the music master, teaching a singing class in the hall. He approved the hall, and greatly appreciated the separation of the musical activities from the theatrical stage. The short reverberation was clearly useful for small singing classes and for rehearsals. In other respects the hall seemed to give satisfaction. From the theatre point of view such a flexible interior might be used by a producer to combine every object into a whole *scena*—make dramatic use of every balustrade, every door, every gangway. The genius of the old masque house consists in its different levels, its steps, its dancing floor, its pageant doors; in a word in its *invitation*. It induces movement and the composition of groups. And here we touch a modern development: today drama studies are experimenting with the arena stage and 'theatre in the round.' All the arts came out of the theatre once, and could come out of them again. So it is useful to have the Art Studio opening out of the stage as Mr. Sykes has here planned. By that means scenic units can be designed and measured easily, and the effect of lighting on coloured and textured surfaces can be studied. The architect here has also thought out the stage, and front of house, lighting carefully. This is usually ignored: but large ports and openings should be recognised in the early sections of the building: equally important is the flood-lighting of the music area at the other end.

* Whether directly or indirectly Christ's Hospital for children and St. Thomas' for the sick also came out of that same sermon of Bishop Ridley's. An interesting description of these foundations is given in *Goodly Heritage* a history of King Edward's School by Gordon Humphreys.

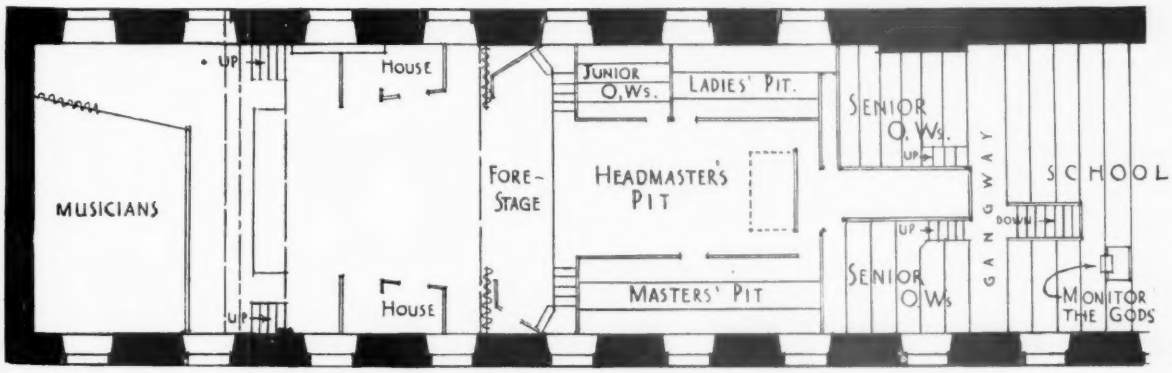


Fig. 1

The Building Research Station acoustic staff were good enough to test the reverberation of the hall empty, and also with a school audience of 170 persons. The results at middle pitch and with stage cyclorama fully exposed were: hall unoccupied 1·5 sec.: hall with 170 persons 1·3 sec. This is shorter than was originally intended. The reason is partly due to the well upholstered benches which the headmaster was able to secure for the hall for a particular purpose. Each bench will take six parents or eight children. This means that on Speech Day, boys can be squeezed up and leave more room for parents. But designers should recognise the important role played by upholstered seats in school halls where compensating absorbents are so valuable. There are now on the market partially padded nesting chairs which could be used with great advantage.*

And last but not least there is the weary business of noise. A good hall is a natural home for a piano, and soon it is found there, and an 'extra music' student practising away at odd hours; or there is a music appreciation class with some loud loudspeakers. That is to say that the hall as a lecture room is vulnerable to noise from outside, and also is itself a prime source of noise. Therefore it must not be a passage room. Mr. Sykes has attended to this. The side classrooms and rear classrooms are separated from the hall by baffle doors into the circulating corridors. The corridors are themselves silenced by stud-rubber floor finishes. The Research Station measured the noise reduction figures as between hall and classrooms, and these were in each case above the grade for a 9-in. party wall plastered: the bass frequencies were well above that standard. The Art Studio, with its 2-in. solid wood sliding door (in area 42 sq. ft.), was naturally less well defended yet reached 37 db.

Mr. Sykes maintains that, although Witley is an independent school, the cost per sq. ft. of this hall and classroom building is no more than is generally permitted for State schools. I am aware that many of my colleagues in the profession would agree in principle with the attitude I have indicated here. Over their drawings, in the labour of composition, all the desires for qualitative school building are working. But there looms always the shadow of the Grand Ministry of Execution and the Slashing of Costs. Hence our modern halls are shacks, which are too low in height, must serve as gymnasium or canteen, open out into noisy kitchens and serveries, and to save space are made into a passage to other rooms. But then they are no longer school halls where things of the mind, needing the 'scallop shell of quiet', can be learned. I believe it to be the worst form of false economy. It is education itself which is slashed.

* A warning is necessary here. Some of the latest upholstered seats are designed to subside slowly, forcing out the air through a hole, with a sighing noise in unison, which has caused complaint. Schoolboys and college students might invent acoustic improvements to those holes.

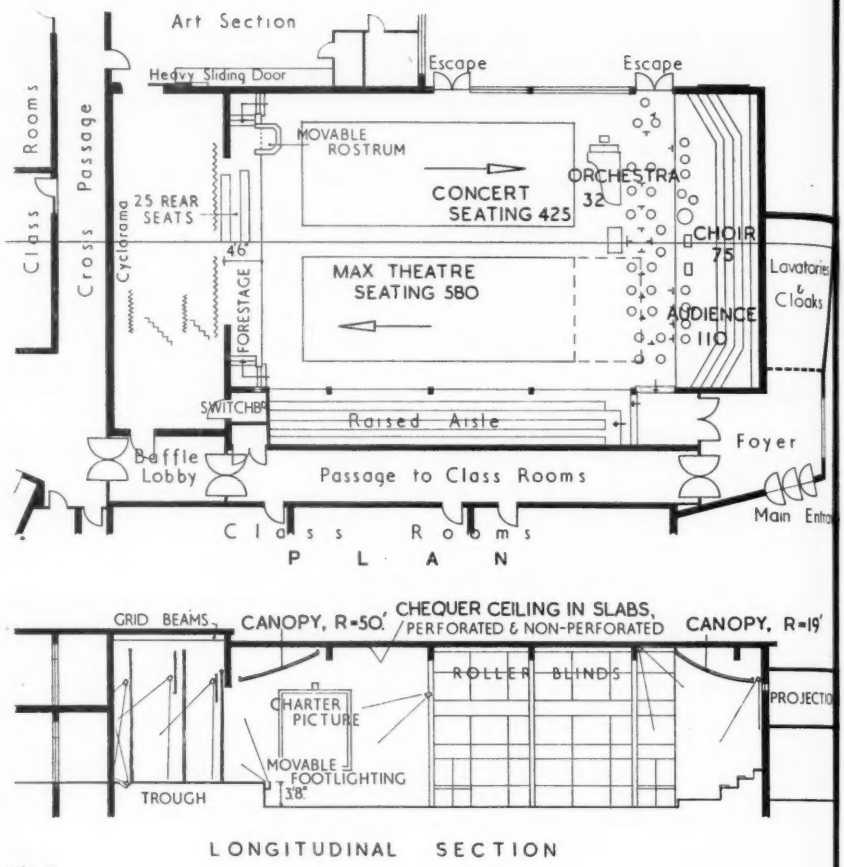


Fig. 2

Fig. 3

Salaries and Responsibilities of Senior Architects in Local Government

IN THE SUMMER OF 1957 the Ad Hoc Committee* carried out a survey of 14 county and five other local authority offices, chosen largely at random. The primary purpose was to establish how far the salaries earned by senior architects below Chief Officer and Deputy level corresponded with the responsibilities they held.

Any assessment of responsibility levels necessarily raises fundamental questions of office organisation and it was therefore found necessary to make a study of each office which, within the limits of the time available, was quite comprehensive and detailed. Chief architects accordingly offered generous and ready co-operation in providing figures about establishment, recruitment, promotion policy, output costs and methods of working besides much local colour that was essential to a proper understanding of each case.

Given the great variety in scope, circumstances and personalities that were involved, it was perhaps not surprising that these offices were often more remarkable for their diversity rather than their similarity. At least, however, they share a common salary grading system, and it was accordingly possible to compute (*a*) the average salary per head of architectural staff (including unqualified) and (*b*) knowing output figures, the value of building work done per head of architectural staff. The average salary in the 14 counties varied from £800 to £1,070—six counties being within the range £950–£990, and the overall average working out at £960. (It must be emphasised that these salaries relate to counties only; and that they have been adjusted to the new scales operating after September 1957.) Their real significance, however, only emerged when related to output; for in no less than seven counties as the average salary per head of architectural staff consistently declined, so the cost of that office, in terms of salary/output ratio, consistently *increased.* Conversely, at least four offices whose salary level was at or above the overall average of £960 showed a consistently low level of costs and a high average value of work per head. Further, in these low cost/high average salary offices the proportion of staff on lettered grades and the top A.P.T. scales was well above the average. Two things, therefore, clearly emerged: (i) A low overall level of salaries merely makes for low output per person and hence relatively high costs. (ii) Greater efficiency, in terms of low cost per £ of work done, can be achieved through the employment of a relatively high proportion of staff in the more senior grades. It is, of course, important to recognise that figures on output and costs are not the whole answer. They evaluate paper efficiency only; they cannot evaluate the quality of work done.

While the full Report to the Council adds much else in the way of verified fact and tentative interpretation which could profitably be pursued to a conclusion in a further study, the findings above are the principal ones and they are felt to merit wider publicity.

* The Ad Hoc Committee on the Representation of Members in Salaried Employment and Review of the Structure of the Profession. Chairman, Richard Sheppard [*F*].

Practice Notes

Edited by Charles Woodward [*A*]

NATIONAL FEDERATION OF BUILDING TRADES EMPLOYERS. Restrictive Trading Agreements. The Registrar of Restrictive Trading Agreements is charged under Section 1(2) of the Restrictive Trade Practices Act, 1956, with the duty of taking proceedings before the Restrictive Practices Court in respect of agreements registered under that Act. The N.F.B.T.E. learns that in pursuance of this duty he proposes shortly to cause a Notice of Reference to be issued under the Restrictive Practices Court Rules, 1957, in respect of the agreement of the Birmingham Association of Building Trades Employers.

The 'agreement' comprises all those documents which have been registered under the Act by the Birmingham Association, and these include all agreements issued by the National Federation or the Midland Federation which are imported by reference into the Constitution of the Birmingham Association.

The N.F.B.T.E. is informed that the Registrar has selected the Birmingham Association by way of a 'test case' and whatever may be decided will in due course become applicable to other associations where similar agreements exist.

Under Section 21(1) of the Act the onus is placed on the respondents to show to the satisfaction of the Court that the registered Agreements are not contrary to the public interest because they come within the statutory exceptions.

The Council of the N.F.B.T.E. has expressed its wholehearted support for the Birmingham Association in this matter and has agreed to co-operate with the Association in all matters necessary for the conduct of proceedings. (27 November, 1958.)

THE NATIONAL FEDERATED ELECTRICAL ASSOCIATION. Industrial Agreements of the Electrical Contracting Industry. Very many inquiries are received by this Association from architects, surveyors, local authorities, government departments and others concerning the wage rates and working conditions of the electrical contracting industry.

The Association publishes an Industrial Agreements and National Working Rules Booklet, the 1958 edition of which has just been released.

The new booklet contains full details of wage rates (back as far as 1939 for journeymen electricians), together with information about rates for adult mates and apprentices. The National Working Rules are reproduced in full, as are all the current agreements affecting the wages and working conditions of electrical contracting operatives. These deal with such matters as hours of work, overtime rates, holidays (annual and bank), apprenticeships, etc.

The booklet runs to 91 pages and is obtainable at 4*s.* per copy post free from the Association at 14 Bedford Row, London, W.C.1.

LONDON COUNTY COUNCIL. At a Council meeting on 2 December 1958, the Chairman of the Housing Committee was referred to his reply to a question on 19 November 1957 (minutes, p. 697) and asked what was now the average cost per room of building construction of the Council's three-room dwellings in (i) cottages; (ii) three-storey flats; (iii) five-storey flats; (iv) eleven-storey flats; (v) 14-storey, 16-storey or 19-storey flats; and (vi) 28-storey flats?

In reply the Chairman said: Although the price of labour and materials has continued to rise, an examination of recent tenders received shows a drop of approximately 6 per cent on the prices obtaining in November 1957. This applies to the first five items referred to in my answer to the previous question. There have been no new 14- or 19-storey flats, but tenders received in September of this year for 16-storey flats at Rotherhithe New Road, Bermondsey, show a cost of £944 for a flat containing an average of 2·68 rooms.

NATIONAL BUILDINGS RECORD. The National Buildings Record was established in 1941 with the object of compiling a complete record of architecture in England and Wales by means of photographs and measured drawings and maintaining a Library in which such records are available to the public for consultation and study. The collection contains some 490,000 items and there are over 300,000 negatives available from which applicants can be supplied with copies of photographs.

In the Annual Report for the Year 1957–58 the services of the Record to the Advisory Committee on listing buildings of architectural and historical interest (Ministry of Housing and Local Government) and to the Historic Buildings Councils (Ministry of Works) are referred to, and in the last report of the English Council to the Minister of Works its Chairman said that 'if the National Buildings Record did not exist, we should have to ask you to institute it'.

The resignation of Mr. W. H. Ansell, Past President, R.I.B.A., from the Council of the Record is a serious loss. He was one of the founding members and represented the R.I.B.A. on the Council since the incorporation of the Record and had been Vice-Chairman for the same period.

The address of the Record is 31 Chester Terrace, Regent's Park, London, N.W.1 (Welbeck 0619), and communications should be made to the Director.

LAW CASE

Regis Property Company Ltd. v. Dudley. The judgments of the House of Lords in this case were reported in THE ESTATES GAZETTE for 22 and 29 November. The case concerned a tenant's liability for repairs under the Rent Act, 1957, and the House of Lords discussed the meaning of 'fair wear and tear' in a repairing lease.

Two cases were referred to in the judgments, the first being *Haskell v. Marlow* (1928) 2K.B.45. The Court's interpretation of the words 'fair wear and tear' in that case was as follows:—The exception of reasonable wear and tear operates to exempt a tenant from liability only for those dilapidations caused by wear and tear which are reasonable both in character and amount, and here in this case, the wear and tear, although reasonable in character, was wholly unreasonable in amount. In consequence the tenant was held liable.

The second case was *Taylor v. Webb* (1937 1 All E.R. 590) in the Court of Appeal. The judgment in this case was as follows:—A landlord covenanted in an underlease to keep the outside walls and roofs in tenantable repair as he was required by the head lease to do. The covenant in the head lease contained an exception of damage by fire and fair wear and tear. Owing solely, as it was found, to the effect of wind and rain, certain roofs and skylights became defective, and as they were not repaired certain rooms in due course became uninhabitable. The tenant claimed damages for breach of the landlord's covenant to repair:—

Held: the question whether wear and tear is fair and reasonable is not affected by the amount of the dilapidation. In the circumstances the dilapidation of the roofs and skylights was not such as, upon the proper construction of the covenant as a whole, the landlord was bound to make good, and he could not be held responsible for the damage resulting from the neglect to repair.

The House of Lords decided that the statements of principle made by the Court of Appeal in the *Taylor v. Webb* case cannot be supported if they were intended to apply to the ordinary case of a qualified repairing covenant, and that the law prior to that case should now be reinstated. Their Lordships preferred the judgments in the *Haskell v. Marlow* case and decided that the *Taylor v. Webb* case should be regarded as overruled.

Correspondence

PUBLIC RELATIONS

The Editor, R.I.B.A. Journal

Dear Sir,—I feel sure the Public Relations Committee is doing excellent work in ways which are not known to most of us. I seem to remember having read a reference somewhere to its contact with the B.B.C. Can we hope that in the not too distant future we may expect to have a regular series about the work of architects on television and sound broadcasting? By this I mean not merely academic talks on the Third Programme which appeal only to those already interested, but an attempt to 'put over' to the mass of the people just what we do. There are popular talks on painting (Sir Gerald Kelly's for example), sculpture, medicine, science, astronomy, exploration, natural history, etc., but seldom architecture and building. Architects showed their prowess in 'Monitor' on a recent Sunday evening, so perhaps this is a beginning but much more is needed. Whenever architects compare the experiences they have with clients, the story is always the same, namely an abyssmal ignorance of our work. In every walk of life whether professional or commercial, virtually nothing seems to be known about the role of the architect. Impressive reports and recommendations are issued from time to time by Joint Consultative Councils (Architects, Surveyors and Contractors) on the need for ample time in planning, but unless the work involved in this planning can be made known to clients it gets us nowhere. We all know the pattern it takes. (*a*) Sketch plans required in a matter of days. (*b*) Working drawings wanted in a week or two. (*c*) Tenders wanted in a month or two of first instructions. The complications arising from negotiations with local, county and government departments mean absolutely nothing to the average client, and if one endeavours to explain them, they are thought of as excuses for inefficiency.

It is hardly an exaggeration to say that the average client really believes an architect's work begins with a watercolour perspective and after that entails no more than an occasional visit to the works to see if the building is resembling his idea. Some kind of magic is thought to be at work, whereby the contractors can construe exactly what is to be done by merely looking at a simple drawing. No wonder clients think 6 per cent is too high a price to pay for such services! Creswell's excellent book (published some 30 years ago), *The Honeywood File* and the series which followed it is to my mind, the only successful attempt which has been made to tell our story in words understandable by the layman. Is it not possible for the Public Relations Committee to consider some positive action along these lines? Could not Creswell's books be serialised on television or sound broadcasting for instance? I can think of many other approaches to the problem, but I do urge that something be done before we are dismissed as highly paid 'long haired lunatics' whose small role in building is perhaps a luxury after all!

Yours faithfully,
A. HODSDON ARCHARD [*F*]

[Mr. Hodsdon Archard's comments have been noted and will be discussed at the next meeting of the Sound Broadcasting and Television Sub-Committee of the Public Relations Committee.—*Ed.*]

Book Reviews

Public Authority Housing, by *A. W. Cleeve Barr.* 10 in. 287 pp. incl. illus., bibliog., index. B. T. Batsford. 1958. Price £5 5*s.*

During the last two years the extent of Government subsidy support to local authority housing has been drastically reduced and the main initiative has passed to the private sector. It is, therefore, a convenient moment to review the achievements of public authorities in the field of housing since the end of the war to see what successes or failures there have been. It is fortunate that Mr. Barr has, before settling down to his new post in the Ministry of Education, been able to find the time to do this, for his experience as Assistant Housing Architect with the London County Council has given him the essential knowledge for a scientific appraisal. He reminds us of the frustrations of those who immediately after the end of the war carried out intensive research into the factory-made house only to find that it was not considered to have the same significance as the factory-made school with which architects working in the educational field can claim to have achieved a high degree of success. Perhaps the breathing space afforded by the reduction in public authorities' housing programmes will enable architects to pick up the threads of this valuable experiment. It may be that the initiative could come from a group of authorities working on similar lines to that of the Consortium, which is now successfully developing its own system, and reaping for itself the advantages, financial and otherwise, which accrue.

The excellent illustrations of post-war schemes, divided by coincidence equally between London and provincial authorities, are the best evidence of the successes achieved by local authority architects. Undoubtedly the group of architects who in the late 30's decided that there was a valuable job to do as public servants must be given much of the credit for the fine achievements of the post-war period. They have demonstrated that, if sufficient enthusiasm is shown, the rather dreary approach to municipal architecture that persisted in those days can be completely transformed. No longer can it be said that one must look only to the private sector for good architecture. In fact today the record of private development in housing, since it was given the opportunity to make the major effort, is very disappointing, mainly because architects have not been given or have not created the opportunity of making their contribution.

Perhaps the most outstanding failure on the part of public authorities and their architects has been their lack of appreciation of the role of the motor car. The standard of provision of garages or garage space has, in Mr. Barr's analysis, only reached the proportion of one garage or garage space to every other dwelling, whereas if one looks ahead it is quite clear that at least one garage, if not more, will

be required for every dwelling. This lack of foresight applies not only to garages; more fundamentally it applies to the housing layouts, for of the 50 or more schemes illustrated only two or three are based on the principle of pedestrian and vehicular segregation. For the rest, the problem of finding space for the provision of more garages is already exercising the mind of the authorities, because so many of the open grass forecourts are now being ruined by the unauthorised parking of cars.

Two other problems worth mentioning are those of condensation and fire regulations. New forms of construction inevitably give rise to new problems and condensation has proved to be one of the most annoying worries. The section on this subject in Mr. Barr's book should be read by all those who design flats and houses. As for fire regulations, it is amazing how indefinite these can be for those who have to make up their minds how many lifts and staircases should be provided and how they should be arranged in blocks of flats of varying heights and floor plans. There is scope here for more research on the basis of international experience because the standards in this country still seem very high in relation to those abroad, for example in Scandinavia, and it may be that public money is being used for safeguards which are unnecessarily overcautious.

This book will undoubtedly find its way on to the bookshelves of all local authorities and public organisations concerned with housing, to be used, we hope, not so much as a reference book giving the last word on the subject, but rather as a means of making sure that past experience is taken as a starting point for new development. So often architects start from first principles and worry over problems which have already been solved, and this should enable them to contribute new thought. Professor Robert Matthew in a preface comments that he finds most heartening the general atmosphere of encouragement to experiment which today is beginning to include not only methods of layout and the use of new materials, but also contractual procedures. This book should encourage everyone concerned with housing to adventure further.

ARTHUR LING [*F*]

Napoleon III and the Rebuilding of Paris, by *D. H. Pinkney*. 9¼ in. xi + 245 pp. incl. illus. + 16 pls., bibliog., index. Princeton University Press. 1958. £2 8*s*.

Few of the admiring visitors to Paris fully realise the contributions made by Napoleon III and Haussmann; this consisted in a novel approach to planning, emphasising the importance of water supplies and sewers, but nevertheless continuing a tradition, which goes back beyond the Revolution of 1789. Indeed, the most striking factor in this development is the continuity from the art of the Classical Reformers of the Ancien Régime, Boullée and Ledoux, to that of Napoleon I, and further to Napoleon III. The tradition of large avenues, of the layout of gardens, of building high and functionally, was inherited. The period of Napoleon III added an enlargement and a multiplication of these aims, as well as an interest in English landscaping and an influence of the St. Simonians. To these elements may be added a concern with strategy, in order to defend the existing class structure.

Professor Pinkney draws attention to these factors and gives a rounded picture of the personalities involved, the bankers, the prefects, the politicians. He makes use of official records and of Haussmann's personal Memoirs. One would, however, like to have a more precise knowledge of the problems involved. What, for instance, happened to the displaced slum dwellers? How far was legislation repressive? Did Haussmann's planning exert a lasting influence after the Commune and in the early 20th century?

The illustrations accompanying the text are delightful, well selected and combining a sense of humour with an intelligent survey of 19th-century Paris. A section of *c*. 1850 showing an apartment house, with the differentiation of classes on each floor, is particularly revealing, ranging from the gay working to the prosperous middle classes and the starving artists.

This book can be recommended to the traveller and student alike, who will both enjoy the history of an important chapter in European planning, and benefit from its balanced presentation.

HELEN ROSENAU

Solar Control and Shading Devices, by *Olgyay and Olgyay*. 8¾ in. × 11 in. (4) + 201 pp. incl. illus. Index. Princeton University Press. 1957. £5.

In their well-designed book, copiously illustrated with both diagrams and photographs, the Olgyay brothers have tried to meet the demand for a comprehensive and practical work on the problems of, and those associated with, solar control. This is virtually the whole field of what has become known as climatic environmental control. These problems have in the past been capable of empirically stimulating results, which, although architecturally satisfying, have not always met the technical requirements for which they were intended. Recently it has been shown, however, that these technical requirements may be more fully satisfied by the use of scientific means—often in the form of diagrams or instruments—without seriously limiting the scope of the designer.

The authors, with a keen understanding of their subject and a sensitive approach, have set out to challenge the difficulties which immediately present themselves when scientific means are being used to seek architectural expression to technical problems. This they have aimed to accomplish by first analysing the whole problem (and especially the complexities of the sun's movement in relation to buildings and their surroundings) and then by showing what methods are available, how these may be applied, and the many possibilities still left open to the designer. The most significant of the methods described and illustrated are those concerned with the basic mechanics of designing shading devices, namely climatic and solar analysis, rather than those concerned with the associated thermal, visual and economic aspects of the problem, which are also included. Here they have added the results of their own researches which include a convincing method of combining climatic and solar information for determining the period during which solar control is necessary; a new and simple instrument for model measurements with an artificial light source; and a further development in the use of shadow angle protractors and sun path diagrams, which assist in the design of shading devices on the drawing board. As there is no panacea for all situations (of both orientation and locality), each problem requires its own analysis and solution. The ground work still remains tedious, though not difficult, and once completed for a particular circumstance, the use of the simple 'tools' is quick and reliable.

The basic 'know-how' for tackling the problems involved has been quite clearly provided, but nevertheless there is a marked lack of worked examples, especially in the practical use of protractors and sun path diagrams.

The numerous photographs of practical examples do not materially expand the essence of the text to which they refer, and serve only as an excellent, if not stimulating and refreshing, vocabulary of shading devices. Furthermore, much of the valuable detailed information of the sun's movement has been lost by reproducing sun path diagrams for various latitudes to a very small scale. These and other apparently minor details have to a large extent prevented this book, comprehensive as it might be, from becoming the practical handbook which this important subject has demanded for some time.

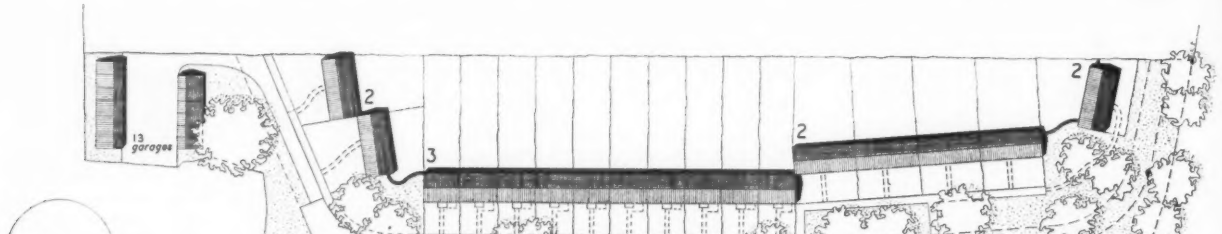
LYALL ADDLESON [*A*]

A Short Account of Early Muslim Architecture, by *K. A. C. Creswell*. Pelican Books A407. 7 in. xvi + 330 pp. incl. illus. + 72 pls., bibliog. index. Harmondsworth, Penguin Books. 1958. 8*s*. 6*d*.

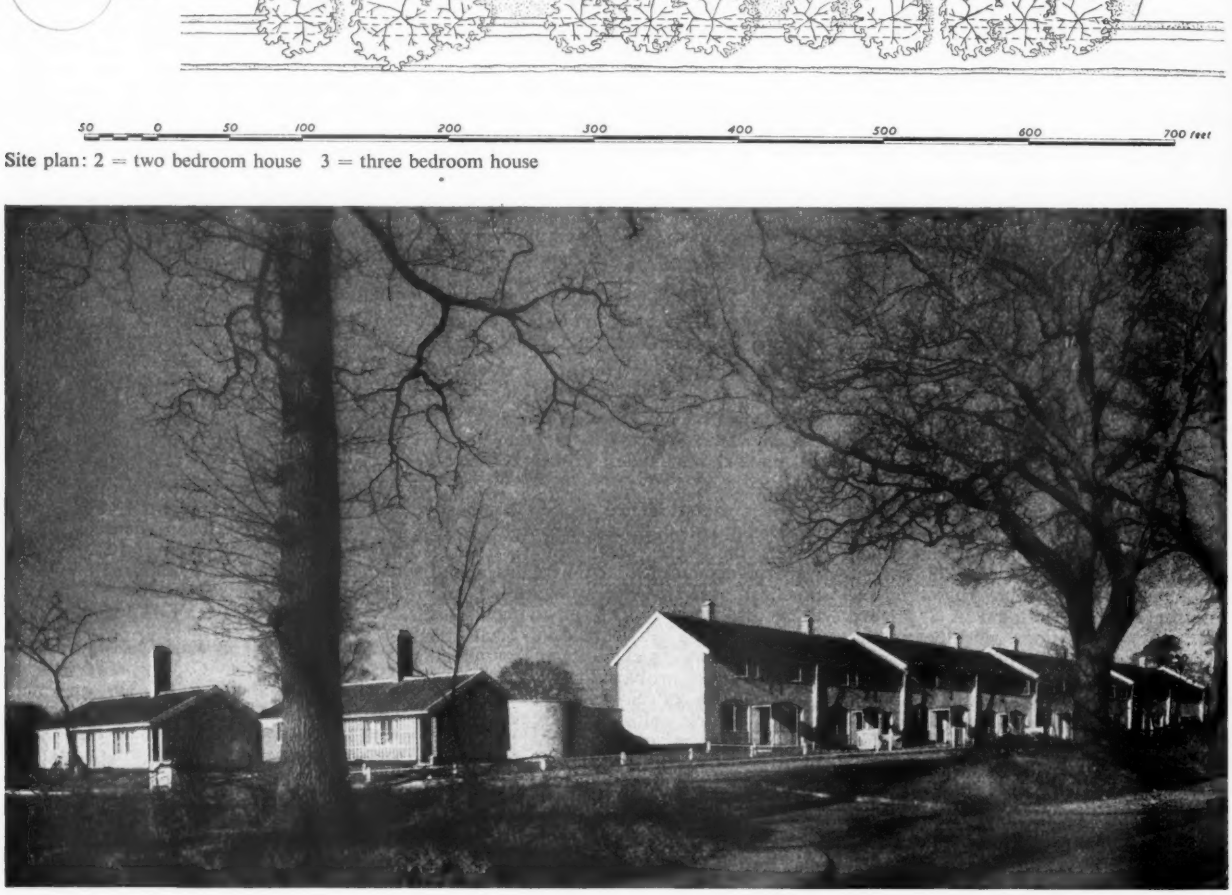
Here is the concentrated essence of Professor Creswell's majestic volumes on the architecture of the Umayyad and Abbāsid dynasties, which were published in 1932 and 1940. These two truly impressive monuments to his scholarship also contained some contributions by other expert authors, but otherwise this eight-and-sixpenny Penguin includes almost everything which the earlier books provided in, of course, a much more readily accessible form. For the first time, indeed, the whole story of Muslim architecture of the early periods is available to the general reader. Not that there has been any concession to popular tastes. Like its predecessors, the book is essentially the work of a scholar—and, incidentally, an astonishing feat of compression. It is fully illustrated with photographs, and with line drawings in the text. Really remarkable value for money.

J. C. P.

Rural Housing at Gillingham for Loddon R.D.C. Norfolk



Site plan: 2 = two bedroom house 3 = three bedroom house



Architects: Tayler and Green

Herbert Tayler, A.A.DIPL.HONS., A.I.L.A. [*F*]

David J. Green, A.A.DIPL. [*F*]

THIS HOUSING GROUP was awarded the R.I.B.A. Architecture Bronze Medal in the area of the Norfolk and Norwich Association of Architects for the three-year period ending 31 December 1957.

This small group (Forge Grove Site 44) consists at present of 17 houses of which ten are in two storeys and seven in one storey. It was built at two separate periods, the first in 1955, the second in 1957 and the same site would hold a further 30 or so houses. It is only one of many sites in the whole programme, which already includes 417 houses, in 22 parishes, on 44 sites, built in 68 separate contracts over 13 years.

These figures reveal a typical difficulty—and a great one—for the designer of rural housing, the difficulty of maintaining any sort of unity over a long period, for houses built in fits and starts, in bits and pieces and never really 'finished' in a formal sense at all.

The architects are forced to maintain in their own files, some sort of a master-plan, but this is never an officially approved one; indeed it is never even submitted, because the system of constantly changing members of a Housing Committee, and of the

government itself, does not allow many future commitments to be made. The designers have taken this uncertainty and used it as an inevitable part of the character of their design, that of slow (but never disunified) growth, and this indeed also describes the traditional English village.

The site lies on the main road from Beccles to Norwich. On this road, Gillingham is the first village after Beccles, whose huge church tower can be seen across the marshes from Gillingham. Large hedgerow trees are unpopular with Norfolk farmers and this site is exceptional in having any existing trees because it lies on a small private estate, Gillingham Hall.

The houses are built in five different bricks of quiet browns, yellows, black, and one house only colourwashed pink. The roofs are of the traditional Norfolk pantiles (first used there by the Flemish Weavers) in three colours, brown, red and black. Most of the paintwork is crisply white and there are elegant details, different on each house such as wrought iron porches, trellises, and patterned brickwork, the latter recording the starting date '1955' in large letters on one of the gable end walls. Two great curving walls shelter the back gardens and perpetuate the sound 18th-century tradition of the 'crinkle-crankle' garden wall, which waves on plan, not for fun, but for stability.

Although each site in the programme uses the architects' own standard components, from whole house plans to details such as trellises, each site is given a marked individuality and each is immediately recognisably different from the others. This in itself is a step forward for 'Council housing' and no doubt the medal award has to be made, mainly on this important question of external appearance. The architects themselves feel that their real contribution lies in the planning of the houses and of the sites.

This planning was described in the R.I.B.A. JOURNAL of October 1947, before any houses were built, because it presented various new features of special significance. These features have since been widely accepted and indeed adopted by the Ministry of Housing as standard solutions. First the introduction of long terraces, not used in rural districts since the 18th century, with their advantages of economy, warmth and restful appearance in the landscape, but first, certain snags of the 19th century industrial town terraced housing, which made the terrace unpopular and brought in the 'semi-detached', had to be overcome. These snags were quite simply: narrow frontage (no space), back access lanes (no privacy) and monotony (no individuality). The architects cured all three items and their present terraces are, in consequence, unquestionably popular.

The frontages are still kept wide (25 to 42 ft.) in spite of the ever-increasing architectural fashion to pinch these down to about 11 ft. The wider frontage gives space to the house and to the gardens and keeps the neighbours, as it were, at arm's length.

The back access lanes are abolished by providing an individual way through each house from front garden to back, but *not* through any of the rooms, a feature impossible to provide in a narrower frontage. Here the back gardens are quiet, sheltered and private to each family and not open to the tradesman, the refuse emptier or neighbours who care to call 'at the back'.

Lastly, the monstrous appearance of the Victorian street is avoided by subtle differences on each house, in the bricks, doors, windows, trellises, porches and so on, but always by quiet means so that you can recognise your own house without the architectural unity of the terrace being destroyed, also to avoid monotony the terraces are broken or set at slight angles to each other or are curved. At Gillingham, for instance, an element of surprise is used where the approach from the village does not reveal the further one-storey houses set back behind the higher terrace till you reach the end of that terrace.

To achieve even small advances in the difficult art of architecture whose unity must embrace the plan as well as the elevation, the architect must have a good client and this the Loddon Council have undoubtedly been.

The crinkle-crankle wall which waves, not for fun, but for stability

The wider frontage gives space to the house and to the gardens

Notes and Notices

NOTICES

Fourth General Meeting, Tuesday 3 February 1959 at 6 p.m. The Fourth General Meeting of the Session 1958–59 will be held on Tuesday 3 February 1959 for the following purposes:

To read the Minutes of the Third General Meeting held on Tuesday 6 January 1959.

The President, Mr. Basil Spence, O.B.E., A.R.A., A.R.S.A., to deliver an address to architectural students and present the Medals and Prizes 1959.

Mr. Edward D. Mills [*F*] to read a criticism of the designs and drawings submitted for the Prizes and Studentships 1959.

(Light refreshments will be provided before the meeting.)

Fifth General Meeting, Tuesday 17 February 1959 at 6 p.m. The Fifth General Meeting of the Session 1958–59 will be held on Tuesday 17 February 1959 for the following purposes:

To read the Minutes of the Fourth General Meeting held on Tuesday 3 February 1959; formally to admit new members attending for the first time since their election.

Mr. N. Keith Scott, M.A., B.Arch., Dip.C.D. (L'pool), A.M.T.P.I. [*A*] to read a paper on 'An Architect Looks at America'.

(Light refreshments will be provided before the meeting.)

Session 1958–1959. At the Second General Meeting of the Session 1958–1959 held on Tuesday 9 December 1958 at 6 p.m.

Mr. Basil Spence, O.B.E., A.R.A., A.R.S.A., President, in the chair.

The meeting was attended by about 350 members and guests.

The Minutes of the Inaugural General Meeting held on Tuesday 4 November 1958 having been published in the JOURNAL, were taken as read, confirmed and signed as correct.

The following members attending for the first time since their election were formally admitted by the President: *As Fellows:* S. E. Bragg, J. E. Collins, J. R. Harris, F. C. Levitt, C. J. Oliver. *As Associates:* M. H. Arnold, David Bishop, C. H. Blake, D. J. Buckman, J. D. Cutler, T. W. Davis, F. E. Dickinson, Eric Erber, B. H. W. Henderson-Gray, E. C. Howard, A. H. Hughes, G. E. Inns, R. J. Kemp, P. G. Kennedy, D. G. G. Knox, Geoffrey Langdell, J. W. Lansley, W. P. Loney, K. M. Maplestone, T. A. J. Poplett, J. N. Redwood, L. W. G. Reynolds, D. G. Ricketts, William Ritchie, A. M. Seward, K. A. Stott, D. C. Streatfield, N. S. Tilley, J. van Rees, A. A. W. Wagner, I. A. B. Webb, T. F. R. White, J. E. Whittemore.

Mr. Percy Johnson-Marshall, A.M.T.P.I. [*A*], having read a paper on 'Comprehensive Redevelopment', a discussion ensued and on the motion of Professor Robert H. Matthew, C.B.E., A.R.S.A., M.A. [*F*], seconded by Mr. Richard Edmonds, Chairman of the Town Planning Committee of the London County Council, a vote of thanks was passed to Mr. Johnson-Marshall by acclamation and was briefly responded to.

The proceedings closed at 8.15 p.m.

Building Surveying Examination. The R.I.B.A. Examination qualifying for candidature as Building Surveyor under Local Authorities will be held at the R.I.B.A. on 29, 30 April and 1 May 1959. Applications for admission to the examination must be made not later than 13 February on the prescribed form to be obtained from the Secretary, R.I.B.A.

Publicity. The Practice Committee recommend members to see that, when writing or approving an article or descriptive note for the Press, technical or otherwise, relating to a completed building, the names of the quantity surveyor and contractor are always mentioned.

British Architects' Conference, Cardiff, 10–13 June 1959. The British Architects' Conference in 1959 will be held at Cardiff from 10 to 13 June at the invitation of the South Wales Institute of Architects. Full details of the programme will be published in due course. Particulars of accommodation in hotels is given below.

Annual Subscriptions and Contributions. Members' subscriptions and Students' contributions for 1959 became due on 1 January.

	£	*s.*	*d.*
Fellows	12	12	0
Associates	7	17	6
Licentiates	7	17	6
Students	2	2	0

For members resident in the trans-oceanic Dominions who are members of Allied Societies in those Dominions, and for members resident overseas in areas where no Allied Society is available, the amounts are as follows:

	£	*s.*	*d.*
Fellows	7	17	6
Associates	5	15	6
Licentiates	5	15	6

BRITISH ARCHITECTS' CONFERENCE, CARDIFF, 10–13 June 1959

The Conference Committee have made provisional reservation of accommodation at the following hotels for members attending the Conference. *Early application must be made to the hotels, mentioning the British Architects' Conference*, as they will not guarantee to reserve the accommodation later than the end of March.

Hotel	*A.A. Category*	*Rooms*		*Approx. Charges Bed and Breakfast*	*Distance from the City Hall*
		Double	*Single*		
Cardiff					
Angel Hotel, Westgate Street	4 Star	20(T)	10	32/6 to 40/– + 10%	700 yards
(U) Central Hotel, near General Station	—	18(T)	23	22/6	1,150 yards
Grand Hotel, Westgate Street	2 Star	13(T)	5	27/6 to 30/– + 10%	900 yards
* Park Hotel, Park Place	4 Star	26(T)	38	33/– to 45/– + 10%	400 yards
* Queens Hotel, St. Mary Street	3 Star	20(T)	5	28/6 + 10%	850 yards
Royal Hotel, St. Mary Street	4 Star	20(T)	10	32/6 to 40/– + 10%	1,000 yards
(U) The Llandaff Hotel, Llandaff	2 Star	7(T)	8	26/6	2 miles
Newport					
* Kings Head Hotel, High Street	3 Star	4(T)	—	27/6	12 miles
* Queens Hotel, Bridge Street	3 Star	8(T)	20	30/–	12 miles
Westgate Hotel, Commercial Street	3 Star	10	—	27/6	12 miles
Penarth					
* Esplanade Hotel	—	6	6	25/–	5 miles
St. Mellons					
* St. Mellons County Club	—	8(T)	2	40/– + 5/– membership fee	6 miles
Pontypridd					
* New Inn, Taff Street	3 Star	10(T)	—	25/– + 10%	12 miles
Bridgend					
* Wyndham Hotel, Dunraven Place	2 Star	4(T)	4	25/–	19 miles
Porthcawl					
* Seabank Hotel, The Promenade	4 Star	15(T)	12	32/6 to 42/6	26 miles
* Esplanade Hotel, Esplanade	3 Star	10(T)	8	27/6 to 30/6 + 10%	26 miles

The names of the following hotels have also been given by the local Committee and any further information will be published in the February issue of the JOURNAL.

Cardiff: Alexandra Hotel, Queens Street; Bristol Hotel, Penarth Road; Philharmonic Hotel, St. Mary Street; Sandringham Hotel, St. Mary Street; (U) Beverley Private Hotel, 75 Cathedral Road; (U) The Cedars, Fidlas Road, Llanishen; (U) Glenmore Private Hotel, 150–154 Newport Road; (U) Holmesdale Guest House, Newport Road; (U) International House, 45–47 Charles Street; (U) Linden Court, 191 Newport Road; (U) Penylan Hotel, Penylan Road; (U) Sunbury Private Hotel, 124 Newport Road. *Newport* (12 miles): Tredegar Arms Hotel, Station Approach; (U) Stow Park Hotel, Stow Hill. *Caerphilly* (7 miles): Clive Arms Hotel. *Barry* (8 miles): Barry Hotel, Broad Street; Ship Hotel, Harbour Road; The Marine Hotel, Barry Island; (U) The Knap Hotel, Lakeside; (U) Mountsorrel Private Hotel. *Cowbridge* (13 miles): Bear Hotel, High Street. *Bridgend* (19 miles): Dunraven Arms, Wyndham Street; York Hotel, Wyndham Street. *Porthcawl* (30 miles): Porthcawl Hotel; Pier Hotel, Esplanade; (U) Atlantic Hotel, West Drive; (U) Brentwood Hotel, 41 Mary Street; (U) Fairways Hotel, West Drive; (U) Sandville Hotel, Mary Street; (U) Westwood Ho Hotel, Esplanade.

Hotels marked (U) are unlicensed.
Hotels marked (T) have some twin-bedded rooms.
Hotels marked * have garage accommodation or private parking.
Public car parks are available near to hotels generally, and most hotels can arrange garage facilities if requested.

BOARD OF ARCHITECTURAL EDUCATION

R.I.B.A. Examination in Professional Practice and Practical Experience. The Examination in Professional Practice and Practical Experience was held in London and Edinburgh on 17 and 18 November 1958. Of the 237 candidates examined, 220 passed and 17 were relegated. The successful candidates are as follows:—

Abbott: D. J.
Adams: A. A. W.
Arnott: J. C.
Aylett: C. W.
Bacon: J. W.
Baker: D. L. J.
Baker: K. N.
Bandekar: C. B.
Barden: Kenneth
Barfield: Bernard
Barnard: Kenneth
Barrie: James
Bashford: N. H.
Baxter: R. C.
Binner: H. E.
Bobrowska : Mrs. M. I.
Bodas: V. V.
Brennan: Brian
Brinkhurst: F. R.
Bromley: C. J.
Broughton: B. J.
Brown: G. A.
Bruce: William
Bryan: E. R.
Buckhurst: P. S.
Bull: D. L.
Burrell: J. S.
Butler: J. L.
Buttle: G. M.
Button: R. M.
Cade: W. B.
Campbell: V. O.
Caneparo: J. P.
Car: E. M.
Carroll: G. J.
Carter: O. F.
Castle: T. E.
Charles: Rupert
Church: D. G. A.
Clamp: Henry
Cook: H. A.
Corbett: V. L.
Costello: J. A.
Coveney: J. E.
Cox: G. E. F.
Crews: D. T.
Cross: T. A.
Dadge: N. J.
Davies: B. A.
Davies: W. D.
Davis: J. N.
Davy: D. K.
De Max: M. M.
Dinsdale: J. S.
Dodridge: John
Drobik: J. K.
Drury: R. B.
Dunkley: M. C
Elves: G J.
Elwell: Thomas
Fairbanks: J. K.
Farrar: A. H.
Faulkner: Kenneth
Fellender: L. H.
Fenwick: G. F.
Foggo: K. P.
Fowler: F. C. J.
Fox: W. E.
Freeman: Harvey
French: D. J.
Friend: R. C.
Gibb: R. H.
Gibbons: D. C.
Gibbs: V. D.
Giddens: K. C.
Girling: A. F.
Gladwell: P. W.
Grant: H. D.
Grant: J. C.
Green: J. B.
Griffiths: J. M.
Hambrook: A. W. F.
Hares: J. P.
Harris: Brian
Haydon: R. W.
Hearse: M. E.
Hewett: C. W.
Hiscocks: B. G.
Honey: A. E.
Hooper: R. J.
Houghton: R. G. H.
Hutchinson: E. G.
Imrie: Andrew
Jackman: F. P.
Jadhav: A. S.
Jaiyesimi: S. O.
Jenner: G. J.
Johnson: P. L.
Johnson: V. F.
Jones: A. F.
Jones: K. E.
Jones: P. S.
Judd: Miss S. V.
Jupp: K. E. J. A.
Kaberry: A. R.
Kennedy: C. F.
King: Miss J. M.
Kirk: A. J.
Kopernik-Steckel: K.
Kozik: M. J.
Lakin: J. M.
Lawes: William
Leech: B. A. J.
Leeson: J. P.
Lester: Miss A. M.
Lewis: J. O.
Lightowler: H. C.
Linton: E. I.
Lister: D. C.
Littler: J. A.
Luke: C. K.
Mackenzie: A. J.
MacLean: G. D.
McNay: D. A. B.
Main: C. J.
Mair: F. J. M.
Makepeace: P. E.
Marsh: Geoffrey
Marsh: J. E.
Matthews: A. J.
Mawhinney: J. A.
Metcalfe: Gordon
Middleton: F. D.
Middleton: J. S.
Mitchell: J. T.
Mollison: H. D.
Moore: Jack
Morgan: V. J.
Morris: W. H. F.
Morrison: D. A.
Murphy: Eamonn
Murray: Kenneth
Nadodwalla: D. S.
Nai Pok: Tsang
Napiorkowski: R. T.
Nash: P. J.
Neylan: M. C.
Norman: T. G. G.
Nugent: R. G. C.
Ochel: G. M.
Olley: R. J.
Owen: D. R.
Paine: A. C.
Parkinson: B. M. G.
Patel: C. G. K.
Paterson: T. A.
Pearson: C. E.
Peverley: J. R.
Phillips: F. B.
Poulton: J. C.
Pradhan: A. S.
Priestley: Geoffrey
Pym: W. E.
Reading: Lee
Redmond: Leslie
Ribeiro: E. F. N.
Richardson: A. P.
Richardson: C. J.
Richmond: J. M.
Roberts: R. J.
Robinson: K. R.
Robinson: V. H.
Russell: Barry
Ryan: J. M.
Savage: S. K.
Savage: W. J.
Scott: P. S.
Sharp: L. S.
Shryane: John
Silvester: S. A. J.
Smith: Derek F.
Smith: Harold S.
Smith: John S.
Smith: Kenneth P.
Smith: Robert M.
Sowerby: J. M.
Spence: R. M. M.
Spratley: J. A. R.
Stachowski: H. G.
Stevens: P. L.
Stevens: R. A.
Stevenson: M. N.
Stocken: Anthony
Stubbings: R. H.
Swann: N. H.
Tanner: B. J.
Taylor: Antony
Taylor: J. W.
Thomas: D. E.
Thompson: A. M.
Thrower: V. J.
Tong: D. R.
Tranter: A. E.
Trezise: D. J.
Trinder: G. E.
Vincent: D. R.
Walker: L. J.
Wallace: R. G.
Walsh: K. R.
Wann: James
Ward: M. H.
Watts: K. G.
Weir: W. D.
Whateley: Brian
Wheatley: J. R. G.
Wilkinson: L. J. A.
Willetts: G. G. J.
Wingfield: A. A.
Wood: H. D.
Woolstone: B. S. J.

Tite Prize and Soane Medallion Competitions, 1959–60. The attention of intending competitors is called to the fact that the closing date for the submission of forms of application for the Tite Prize is 16 January 1959.

The Tite Prize, a certificate and the sum of £100 for the study of the Architecture of the Italian Renaissance, is confined to *Probationers* and *elected Students* of the R.I.B.A. and elected Students of Dominion Allied Societies who have passed the R.I.B.A. Intermediate or equivalent examination, or produce certificates from members of the R.I.B.A. to the effect that they have reached the required standard. Students who have passed the R.I.B.A. Final or equivalent examination at the time of the *en loge* competition are not eligible to compete.

Under the arrangements for the competition only one *en loge* competition will be held. This will take place in London and at non-Metropolitan centres on Tuesday 17 March 1959.

The Soane Medallion, and the sum of £120. The competition is confined to members of the R.I.B.A. and of the Allied Societies Overseas and elected Students of the R.I.B.A. and of the Allied Societies Overseas, who have passed the R.I.B.A. Final or equivalent examination or who have produced certificates from members of the R.I.B.A. to the effect that they have reached the required standard. With regard to the R.I.B.A. Final or equivalent examination, Students need not have passed the Professional Practice Examination to be taken after twelve months' practical experience.

The *en loge* competition for the Soane Medallion will be held on the same day as that for the Tite Prize, i.e. Tuesday 17 March. The closing date for the submission of forms of application is 16 January 1959.

Forms of application for admission to the competitions may be obtained at the R.I.B.A.

COMPETITIONS

Roads Campaign Council Competition. Last date for submitting designs in the preliminary stage: 30 April 1959.

Full particulars were published in the JOURNAL for December, page 66.

Design of Ceramic Sanitary Ware. Last date for submitting designs in the first stage: noon on 31 March 1959.

Full particulars were published in the JOURNAL for December, page 66.

Designs for Small Houses. Last date for submitting designs: noon on 30 January 1959.

Full particulars were published in the JOURNAL for November, page 31.

Stand for the Carter Group of Companies at the 1959 Building Exhibition. Last date for submitting designs: noon on 10 February 1959.

Full particulars were published in the JOURNAL for November, page 31.

ALLIED SOCIETIES

Changes of Officers and Addresses

Royal Australian Institute of Architects. The Institute's address is now London Assurance House, 16–20 Bridge Street, Sydney, New South Wales, Australia (Secretary, R. S. Greig).

Architectural Institute of British Columbia. Mr. Warnett Kennedy, A.M.T.P.I. [*A*], has been appointed to the office of Executive Director as from 1 December 1958.

Berks, Bucks and Oxon Architectural Association. Annual Dinner and Dance. Mr. Colin Cooper [*A*], President of the Berks, Bucks and Oxen Architectural Association, presided at a dinner and dance at the Red Lion Hotel, High Wycombe on Wednesday 19 November, at which the President R.I.B.A., Mr. Basil Spence, O.B.E., A.R.A., A.R.S.A. and Mrs. Spence, and the Mayor and Mayoress of High Wycombe were the chief guests. Representatives were also present from three Allied Societies and from builders' and quantity surveyors' organisations. About 80 people attended.

Mr. Cooper proposed the toast of the R.I.B.A., and Mr. Spence replied and Mr. Lesslie K. Watson, M.B.E., T.D., M.A. [*F*], replied to the toast of the Association proposed by Mr. Spence. The Mayor of High Wycombe, Councillor L. Brain, J.P., responded to the toast of the Guests proposed by Mr. Watson.

Hampshire and Isle of Wight Architectural Association. R.I.B.A. Architecture Bronze Medal, 1955–58. In the summer of last year the Jury which met to adjudicate the entries submitted for the award of the R.I.B.A. Bronze Medal for buildings completed during the period January 1955 to 31 December 1957 within the area of the Association decided that no entry was of a sufficiently high standard to justify the recommendation of an award. It has therefore been decided to extend the period of the award to cover the four years January 1955 to 31 December 1958.

Members of the Association and of other Allied Societies are invited to submit nominations.

Nomination forms are obtainable from the Hon. Secretary, Mr. G. F. Gutteridge [*A*], 140 Lodge Road, Southampton, and should be submitted not later than 31 January 1959.

Liverpool Architectural Society. Annual Dinner and Dance. The Society's annual dinner and dance was held on Wednesday 26 November at the Adelphi Hotel, Liverpool, with the

President, Mr. M. G. Gilling [*F*], in the chair. The R.I.B.A. was represented by the President, Mr. Basil Spence, O.B.E., A.R.A., A.R.S.A., accompanied by the Secretary, Mr. C. D. Spragg, C.B.E.

Sir Hugh Casson, R.D.I. [*F*], proposed the toast of the R.I.B.A. and Allied Societies, to which Mr. Spence replied, and Mr. Gilling proposed the toast of the Guests and the Lord Mayor of Liverpool, Alderman Harry Livermore, responded.

Liverpool Architectural Society. Symposium—Modern Homes, M.H.59. The Society has arranged a four-day symposium to be held from 10–13 February in the Bluecoat Chambers, Liverpool; and the aim is to direct attention to the contribution by architects towards the better design of private housing by stimulating the interest of the general public and the representatives of building committees, insurance companies, building societies and chartered surveyors.

The Symposium will be opened by the Rt. Hon. Lord Cohen of Birkenhead and will be under the chairmanship of the Society's President, Mr. M. G. Gilling [*F*]. The programme will be as follows: *Tuesday* 10 *February*, 5 p.m., a discussion on town planning control, under the chairmanship of Mr. G. Grenfell Baines [*A*], the main speakers being Mr. U. Aylmer Coates [*F*], County Planning Officer for Lancashire C.C., Mr. Frank Barnes, A.M.T.P.I., solicitor and Clerk to Hoylake U.D.C., and Mr. Tom Mellor [*A*]; *Wednesday* 11 *February*, 5 p.m., a general talk on the design of houses and housing estates by Mr. Eric Lyons [*F*]; *Thursday* 12 *February*, 5 p.m., talks on services and equipment by Mr. Duncan Stewart [*A*] and Mr. J. K. Page, B.A.; *Friday* 13 *February*, 5 p.m., three typical houses will be discussed by the architects: (*a*) an architect's own house, (*b*) a family house, and (*c*) a house for a retired couple. It is hoped that the clients will be available to take part in the general discussion which will follow.

During the Symposium a permanent exhibition of well-designed houses built in the area covered by the Liverpool Architectural Society will be on view from 11 a.m. to 8 p.m., together with the R.I.B.A.'s exhibition 'Design Pays', and selected building materials and components. It is intended that some of the houses displayed at the exhibition will be on view to the general public during the following week-end. A number of films and other visual aids will be used, and general talks and discussions will take place after each evening lecture, during which light refreshments will be served.

Further information can be obtained from Mr. Philip Dod [*A*], c/o Willink and Dod, Cunard Building, Liverpool 3. Application envelopes should be marked M.H. 59. No admission charges will be made.

West Yorkshire Society of Architects. Annual Dinner and Dance. The Society's annual dinner and dance was held on Friday 5 December at the Queen's Hotel, Leeds. The President, Mr. Eric O. Robinson [*A*], was in the chair and the R.I.B.A. was represented by the Secretary, Mr. C. D. Spragg, C.B.E. Among the guests were Sir Keith Joseph, Bt., M.P., and the Lord Mayor of Leeds, Alderman Mrs. Mary Pearce, J.P.

Sir Keith Joseph proposed the toast of the R.I.B.A. coupled with the West Yorkshire Society of Architects, to which Sir Bertram Wilson, J.P. [*L*], responded and Mr. Robinson proposed the toast of the Guests to which Alderman Mrs. Pearce replied.

Notes from the Minutes of the Council

MEETING HELD ON 9 DECEMBER 1958

Appointments

(*a*) *University of London: Architectural Education Committee.* P. G. Freeman [*F*] in place of D. L. Bridgwater [*F*]; Hubert Lidbetter [*F*] (re-appointed).

(*b*) *Institute of Builders: Board of Building Education.* D. H. Beaty-Pownall [*F*] (re-appointed).

(*c*) *London County Council District Surveyors Examination Board.* L. A. Chackett [*F*] (re-appointed); George Fairweather [*F*] (re-appointed); J. T. W. Peat [*F*] (re-appointed); F. G. Southgate [*A*] in place of Cecil Kennard [*F*].

(*d*) *University of Leeds: Advisory Committee on the Hoffman Wood Bequest.* Norman H. Fowler [*F*] in place of Hubert Bennett [*F*].

(*e*) *R.I.B.A. Architecture Bronze Medal: York and East Yorkshire Architectural Society: Jury to consider Award for three-year period ending* 31 December 1958. J. H. Napper [*F*], President, Northern Architectural Association.

(*f*) *B.S.I. Committees.* (i) *TIB*/7/3: *Plywood* (*Drafting*) *Constitution.* R. J. Whitley [*A*]. (ii) *CEB*/6/5: *Concrete Transmission Poles.* (iii) *ELCP*/13: *Street Lighting for Traffic Routes.* (iv) *ISE*/52: *Tubular Steel Columns for Street Lighting.* Walter Bor [*A*] in addition to David Cole [*A*].

The Viscount Samuel, G.C.B., O.M., G.B.E. [*Hon. F*]. The congratulations of the Council were conveyed to Lord Samuel on the award of the Order of Merit by Her Majesty The Queen.

Joint Committee on Lecture Fees. The Council considered a report from Mr. J. Kenneth Hicks [*F*], the R.I.B.A. representative on the Joint Committee of Profcssional Institutions considering the remuneration of part-time lecturers on professional subjects. After two years' negotiations, it has become clear that the Joint Committee will not achieve independent recognition for negotiating purposes, and it is now proposed that liaison machinery should be arranged with the National Union of Teachers and the Association of Teachers in Technical Institutions by which those two bodies will look after the interests of part-time lecturers on professional subjects.

The Council gave approval to this proposal.

Joint Meeting with the Institution of Civil Engineers. Reference was made to the Joint Meeting with the Institution of Civil Engineers to be held at the Institution's headquarters in Great George Steeet, S.W.1, at 5.30 p.m. on 20 January 1959 at which papers were to be given by Mr. E. D. Jefferiss Mathews [*F*] and Mr. Ove Arup, and the hope was expressed that members of the Institute would participate.

Review of the Institute's Finances. The Council considered and approved a report of the Finance and House Committee on a review of the Institute's finances and estimates for the years 1959–1961.

Membership. The following members were elected: as Associates 55.

Students. 60 Probationers were elected as Students.

Applications for Election. Applications for election were approved as follows: *Election* 3 *February* 1959: as Associates 249. *Election* 7 *April* 1959 (*Overseas Candidates*): as Associates 9.

Applications for Reinstatement. The following applications were approved: as Fellow: Winston Walker; as Associates: Ailwyn Montagu Best, Edward Anthony Cahill.

Resignations. The following resignations were accepted with regret: Robert Louis Banks [*F*], Albert Edward Bullock [*F*], Thomas Lawrence Dale [*F*], Percy Howard [*F*], William Huson [*F*], Theodore Hansford White [*F*], Arthur Geoffrey Cunningham Brendon [*A*], Guy Davis [*A*], Mrs. Winifred Delmer Dennis [*A*], Henry Nettleton Fisher [*A*], Mrs. Joan Ellen Halman [*A*], Trevellian Phillips Jenkins [*A*], Mrs. Elisabeth Jones [*A*], Charles Kendall [*A*], Gordon Grimley King [*A*], Frederick Bertram Last [*A*], Mrs. Jennifer Mary Radford [*A*], Francis George Reeves [*A*], Mrs. Teresa Roberts [*A*], Lady Doris Adeney Robertson [*A*], Mrs. Mary Morag Shearer [*A*], Mrs. Audrey Christine Smith [*A*], Miss Pamela June Stillman [*A*], David Arthur Thompson [*A*], Robert le Rougetel White [*A*], Mrs. Eleanor Williams [*A*], Norris Slater Antliff [*L*], Harold Leslie Barnard [*L*], George Lester Cook [*L*], Ernest Frankland [*L*], Arthur George Henderson [*L*], Harry William Henley [*L*], Geoffrey D. Langham [*L*], Cyril Austin Leach [*L*], Alexander Mackenzie [*L*], Percy George Massey [*L*], George Edward Matkin [*L*], Leonard Percival Mitchell [*L*], Philip Ewart Mitchell [*L*], William Newham [*L*], Sydney Wills Parker [*L*], Gethin William Roberts Pike [*L*], Edward Procter [*L*], George Harold Scholefield [*L*], Ernest Thomas Sutton [*L*], Louis Charles Veale [*L*], Reginald Austin Watson [*L*].

Applications for Transfer to Retired Members' Class under Bye-law 15. The following applications were approved: as Retired Fellows: Frank Collin Brown, Charles Denny Carus-Wilson, Eric Usher Channon, John L. Seaton Dahl, Frank Twydale Dear, Frank Dowdeswell, William Evans, Reginald Thomas Grummant, Walter Frederick Hedges, George Noel Hill, Percival Theodore Hiorns, Robert Llewellyn Honey, Henry Kendall, William George Norris, Edgar Mainwaring Parkes, Arthur Leonard Roberts, William Alexander Ross, Arthur Gordon Shoosmith, Reginald Buchanan Urquhart, Victor Wilkins. As Retired Associates: George Albert Bryan, Edward Ridehalgh Carr, William Robert Davison, William John Henry Gregory, Gordon Thomas Heard, Ernest James Hickman, Bernard Robertson Saunders, Sydney Geof Scales, Herbert Stanley Stephens, William Elias Willis. As Retired Licentiates: Herbert William Ford, Joseph Hilditch, James Gray Hood, Spencer Lewis Palmer, Arnold Plackett, Arthur Taylor.

Obituary. The Secretary reported with regret the death of the following members: Weng-Kuan Chan [*F*], Joseph Foy [*F*], Geoffrey Cecil Wilson [*F*], George Henry Davies [*Retd. F*], Major Basil Charlton Deacon [*Retd. F*], Peter Andrews [*A*], Brigadier Sir Frank Higginson, C.B., C.M.G. [*A*], David Selwyn Orr [*A*], Wilfroy Anson Cheers [*Retd. A*], John Falkland Monckton [*L*], Leonard Parkin [*L*], Gordon Lewis Thorne [*L*], David Stewart Finlason [*Retd. L*].

By resolution of the Council the sympathy and condolences of the Royal Institute have been conveyed to their relatives.

GENERAL NOTES

Cambridge University: Architecture and Fine Arts Tripos. Courses in architecture were first established in Cambridge in 1908. From that time the School of Architecture, under a director, has provided courses leading to the Ordinary B.A. Degree and a student completing these courses has been able to qualify for exemption from the R.I.B.A. Intermediate Examination. In 1930 the Degree Course was supplemented by a Diploma Course, to make provision for fourth- and fifth-year students.

In 1954 the General Board of the University reviewed the policy of the Department of Architecture and considered ways in which the study of architecture could be developed. In 1955 the Council of the Senate recommended the establishment of a Chair and Sir Leslie Martin was appointed Professor of Architecture in 1956.

Since the appointment of the Professor, the Faculty Board have given detailed attention to the reorganisation of the courses in architecture and fine arts. They have had in mind four considerations:

1. The raising of the standard of the study of architecture.
2. The possibility of taking advantage of the exceptional contributions which could be made by other Faculties.
3. The development of courses which would lead to advanced study.
4. The possible extension of studies in architecture and fine arts, so that special courses may be available to undergraduates who are not architects.

The Tripos in Architecture and Fine Arts, which resulted from these considerations and which has now received the approval of the University, will begin in October 1959. There will be a Preliminary Examination at the end of the first year, and examinations for Part I and Part II will take place at the end of the second and third years. The courses taken by architects will be developed by a more thorough study of the history of architecture in which leading authorities will take part: lectures dealing with the construction of buildings will be strengthened by the introduction of new courses in building science: a course in the theory of architecture will be considerably developed, so that it occupies a significant place in the training of architects. The lecture courses will form an essential background to studio work.

At the Part II stage, it is proposed that special courses in the history and theory of architecture and fine arts should be developed, so that these subjects can be studied as a sequel to other subjects. A student who has obtained honours in Part I in any other honours examination of the University (for example, English, history, or mechanical sciences) may present himself for honours in Part II of the Architecture and Fine Arts Tripos. A candidate for this combined course would be required to take certain compulsory papers but would be allowed some measure of choice among the remainder. It is not intended that this course should provide a vocational training, but it will provide the opportunity for an undergraduate to develop, by serious study, an understanding of architecture and fine arts.

The acceptance by the University of the proposal to establish a Tripos in Architecture and Fine Arts now enhances the status of these studies within the University and places them on the same basis as the other disciplines.

These new courses will lead naturally to postgraduate studies. The Cambridge School has produced distinguished work in the field of historical research, and this has now been extended into postgraduate research into various aspects of urban development.

A.R.C.U.K. Maintenance Scholarships in Architecture. The Architects' Registration Council of the United Kingdom offer for award in June 1959 certain maintenance scholarships in architecture. The scholarships will be renewable from year to year until the student has finished his or her school training. They will be available for students of British nationality who could not otherwise afford such training to enable them to attend architectural schools approved by the Council. Students must, before submitting applications for A.R.C.U.K. maintenance scholarships, ascertain from the local education authority for the district in which they reside, whether that authority has any form of financial assistance available in cases such as theirs. Applications will not be considered if no steps have been taken by students to secure such other assistance as may be available. The scholarships will be available both for students who have already begun their training and for students wishing to begin their training. Scholarships will not be granted to students who will be less than 17 years of age on 1 October of the year in which the examination is taken.

Particulars and forms of application may be obtained from: The Secretary to the Board of Architectural Education, Architects' Registration Council of the United Kingdom, 68 Portland Place, London, W.1.

Copies of previous years' examination papers may be obtained on payment of 6*d*.

The closing date for the receipt of applications, duly completed, is 31 *January* 1959.

University of Liverpool School of Architecture and Department of Building Science. Architectural and Scientific Research Programme, 1959. The Department of Building Science, established last year, has begun its teaching programme and will begin the first of a series of research studies early this year, in collaboration with the School of Architecture.

Two appointments have been authorised. One is a permanent teaching and research appointment for an architect lecturer to work in association with scientists on the staff on the scientific aspects of design. The other is a temporary appointment (approximately two years) of an architect research fellow to work in a team on a study of lighting in relation to the planning and structural requirements of factories.

There is a wide salary range according to experience and those interested should write to the Department of Building Science or to the School of Architecture for further particulars.

The Institute of Advanced Architectural Studies. The following postgraduate and advanced courses are being held during April and May. They are designed for architects, surveyors, town planners, structural engineers and builders, according to the subject of the course, and are as follows: 9–14 April, 'Urban Renewal'; 16–20 April, 'Modern Techniques in Concrete Construction'; 28 April–8 May, 'Protection and Repair of Historic Buildings'; 8–13 May, 'Care of Churches'.

The first two courses in April are new subjects, and the one on concrete construction is being held in conjunction with the Cement and Concrete Association.

Further information is obtainable from the Secretary, Mr. J. P. West-Taylor, M.A., Institute of Advanced Architectural Studies, Micklegate, York.

Institute of Landscape Architects. The facilities for the training of landscape architects in London are at present restricted to the pre-Intermediate evening course at London University, and the demand for places at this University exceeds the present capacity. There are no facilities in the London area for training beyond the Intermediate level.

The Institute is therefore contemplating setting up a Landscape Design Centre at its new premises where students can come to discuss matters of landscape design and receive criticism of their designs in preparation for the Institute's examinations. It would also be a centre to stimulate creative design. It is not anticipated that formal lectures will be given.

Before setting up such a centre, the Institute wishes to assess the demand for such facilities. Would all those interested in taking advantage of these facilities please write to the Secretary, Institute of Landscape Architects, 1 Park Crescent, Portland Place, W.1, giving full particulars.

The R. S. Reynolds Memorial Award 1959. The annual international award for architects established by the Reynolds Metals Company of Richmond, Virginia, U.S.A., in memory of the late Richard Samuel Reynolds, carries an honorarium of $25,000 and an appropriate sculptural emblem, the work of a prominent contemporary artist. Recipients are chosen each year by a jury of distinguished architects working under procedures established with the counsel and co-operation of the American Institute of Architects. The award which is administered by the A.I.A. is international and may be conferred upon an architect of any nationality for work done in any country.

Preference is given to work completed during the three years prior to 1 January 1959, but the Jury, at its discretion, may acknowledge earlier work in selecting award recipients. The Jury will give chief consideration to (1) the originality and the significance of the architectural concept, and (2) the contribution to the use of aluminium.

Full particulars and nomination forms are obtainable on application to the Secretary, R.I.B.A., and the completed form must be submitted to the A.I.A. before 2 February 1959.

Annual Dinner of the County Architects' Society and City and Borough Architects' Society. The Societies' annual dinner was held on Thursday 20 November at the Tallow Chandlers Hall, London, E.C.4. Mr. F. R. Steele, R.I.B.A.Dist.T.P., F.R.I.C.S., M.T.P.I. [*F*], President of the County Architects' Society, was in the chair and the R.I.B.A. was represented by the President, Mr. Basil Spence, O.B.E., A.R.A., A.R.S.A., accompanied by the Secretary, Mr. C. D. Spragg, C.B.E., M.A., and Mr. Gordon Ricketts, M.A., Secretary for Professional Relations. Among the guests were the Rt. Hon. Geoffrey Lloyd, M.P., Minister of Education, Sir Francis Hill, C.B.E., Litt.D., M.A., LL.M., Chairman, General Purposes Committee, Association of Municipal Corporations, and Mr. T. M. Bland, T.D., D.L., Vice-Chairman, County Councils Association.

Mr. Steele proposed the toast of H.M. Government to which the Minister replied, and the toast of the Local Government Associations was proposed by Mr. T. E. North, O.B.E., R.I.B.A.Dist.T.P., M.T.P.I. [*F*], President of the City and Borough Architects' Society, to which Sir Francis Hill and Mr. Bland responded. Mr. G. R. Barnsley [*F*], Vice-President of the County Architects' Society, proposed the toast of the Guests and Mr. Spence responded.

The Modular Assembly. The Modular Society's experimental structure at 27 Albert Embankment, which was erected on a site lent by Carter and Co. and opened on 1 October 1958, closed on 16 December.

During its 2½ months' run, the Modular Assembly has aroused keen interest. It has been inspected by H.R.H. Prince Philip, the Duke of Edinburgh, by Mr. Hugh Molson, Minister of Works, and by many architects, manufacturers, contractors and others concerned with building.

A public forum to discuss the results of this experiment will be held at The Building Centre, Store Street, W.C.1, on Wednesday 14 January at 6 p.m.

Cornell University. Financial Aids 1959–60. The Graduate Division of Architecture and Fine Arts and the Department of City and Regional Planning of Cornell University, U.S.A., are offering the following financial aids for 1959–60 to qualified students for graduate studies in architecture, landscape architecture, city and regional planning, painting and sculpture in the case of the Graduate Division, and to candidates for the degrees of Master of Regional Planning or Doctor of Philosophy with major study in Planning in the case of the Department.

The awards are as follows:

Cornell Graduate Fellowships—Stipend $1,500, plus free tuition and fees. The stipend may be supplemented by a dependency allowance. More than one fellowship may be awarded. University Scholarship—Stipend $175, plus free tuition and fees. Tuition Scholarships—Value, free tuition and fees. A number of awards may be made. Assistantships—Minimum stipend $1,100, plus free tuition and fees. Several awards may be made. Applications will be received until 13 February and requests for additional information and application forms should be addressed to: Dean Thomas W. Mackesey, College of Architecture, Cornell University, Ithaca, N.Y., U.S.A., or to the Department of City and Regional Planning, Franklin Hall, Cornell University.

R.I.B.A. Cricket Club. Annual Dinner. The Club's annual dinner was held at the Architectural Association on 14 November with the President of the Club, Mr. P. W. Adams [*F*], in the chair. The toast of the Club was proposed in a light-hearted speech by Mr. C. D. Spragg, C.B.E., Secretary R.I.B.A., and responded to by the Captain, Mr. C. A. R. Norton [*F*]. Mr. G. D. Fyson [*A*] proposed the toast of the Guests in a suitable manner for the occasion, and Mr. C. S. Davies replied on their behalf. Among the guests were Mr. Eric Bird [A], Mr. Gontran Goulden [*A*] and representatives from the Club's opponents on the field.

Membership Lists

ELECTION: 9 DECEMBER 1958

The following candidates for membership were elected on 9 December 1958.

AS ASSOCIATES (55)

Absalom: Donald Glanville, Dip.Arch.(Manchester), Poulton-le-Fylde.
Aitken: Alastair Robert Innes, Arkley.
Bainbridge: Keith, B.Arch.(Dunelm), Medomsley.
Bates: Raymond Davis, A.A.Dipl., Tunbridge Wells.
Bowman: Fraser, D.A.(Edin.), Edinburgh.
Burton: Richard St. John Vladimir, A.A.Dipl.
Buttress: Donald Reeve, Dip.Arch.(Manchester), Stockport.
Campbell: James, D.A.(Edin.), Thurso.
Campbell: Patrick, B.Arch.(N.U.I. Dublin), Dublin.
Cannell: Christopher John Albert, Dipl.Arch. (Northern Polytechnic), Watford.
Cassidy: Francis George, D.A.(Edin.), Edinburgh.
Clark: Stewart Charles, D.A.(Dundee), Dundee.
Cradick: Harold George [*L*], Winchester.
Crawley: Albert Ferdinand Donal, M.A., D.A. (Edin.), Bangor, Co. Down.
Crownshaw: Raymond, Dip.Arch.(Sheffield), Sheffield.
Duncan: Kenneth Murray Marr, D.A.(Edin.), Edinburgh.
Fuller: Deric William, A.R.I.C.S., Ramsgate.
Garland: John, D.A.(Edin.), Edinburgh.
Gooding (Miss) Elaine Kathleen Mulhern, D.A.(Edin.), Belfast.
Gordon: Rodney Henry.
Griffin: Derek Harrison, Dipl.Arch. (Northern Polytechnic), Chislehurst.
Hards: Victor Albert.
Hawthorn: George Sorby Nelson, D.A.(Glas.), Belfast.
Hersey: Harold, Newcastle upon Tyne.
Hillier: Kenneth Gordon, Dip.Arch.(Cardiff), Cwmbran.
Hives: Colin Vinan, Dipl.Arch.(Oxford), Reading.
Horspool: George Borland, D.A.(Glas.), Kilmarnock.
Howard: Alan Derek, Dip.Arch.(Sheffield), Worksop.
Jones: Roy, B.A.(Arch.) (Manchester), Darlington.
Kaczmarczyk: Stefan.
Kay: Geoffrey, Doncaster.
Kneale: Evan Anthony, B.Arch.(L'pool), Liverpool.
Koralek: Paul George: A.A.Dipl.
Lubicz-Nycz: Jan.
Meyer: Ralph, Dip.Arch.(Birm.), Coventry.
Mill: Alain Barry, B.Arch.(Auck., N.Z.).
Moorhouse: John Brian, Dip.Arch.(Sheffield), Chesterfield.
Neilson: Matthew, D.A.(Dundee), Dundee.
Pike: Alexander Thomas Henry Paul.
Reid: John Archibald Harvey, D.A.(Edin.), Aberdour.
Robb: James, Dip.Arch.(Abdn.), Aberdeen.
Robson: Peter Langley.
Rogers: Philip Gordon Hardy, Dip.Arch.(The Polytechnic).
Scott: Michael George, B.A.(Oxon), D.A. (Edin.), St. Andrews.
Simpson: Geoffrey Michael Thomas Graham, M.A.(Cantab.), B.Arch.(C.T.).
Smith: Charles Adamson, D.A.(Glas.), Glasgow.
Stirling: Ronald James, D.A.(Glas.), Glasgow.
Toes: Leslie Graham, B.Arch.(Dunelm), Newcastle upon Tyne.
Turner: John Robert, Norwich.
Walls: John Finlay, A.A.Dipl., Cheam.
Watson: (Mrs.) Margaret MacBride Nairn, Glasgow.
Webster: Norman Frederick, Dipl.Arch. (Northern Polytechnic), Ilford.
Williams: Rudolph, B.Arch.(Dunelm), Sunderland.
Winterbottom: Jeffrey, Dip.Arch.(Sheffield), Doncaster.
Young: John Reginald Shaw, Gourock.

ELECTION: 3 FEBRUARY 1959

An election of candidates for membership will take place on 3 February 1959. The names and addresses of the candidates, with the names of their proposers, are herewith published for the information of members. Notice of any objection or any other communication respecting them must be sent to the Secretary, R.I.B.A., not later than Saturday, 17 January 1959.

The names following the applicant's address are those of his proposers.

AS ASSOCIATES (249)

The name of a school, or schools, after a candidate's name indicates the passing of a recognised course.

Adams: Archibald Arnold Worthy, (Special Final), 27 Heol Wen, Rhiwbina, Cardiff. Dr. T. A. Lloyd, Lewis John, Morgan Willmott.
Anderson: James Gordon, D.A.(Glas.), (Glasgow Sch. of Arch.), 17 Almada Street, Hamilton, Lanarkshire. L. W. Hutson, Stuart Clink, Prof. W. J. Smith.
Arnott: John Cromarty, (Special Final), 71 Kethers Street, Motherwell. Samuel McColl, L. W. Hutson, J. M. Cowie.
Aroskar: Anand Dattaram, (Final), 3 Hemstal Road, N.W.6. Applying for nomination by the Council under Bye-law 3(*d*).
Ash: Lewis Sidney, Dip.Arch.(Dunelm) (King's Coll. (Univ. of Durham), Newcastle upon Tyne, Sch. of Arch.), 57 Davison Avenue, Whitley Bay, Northumberland. Prof. W. B. Edwards, F. A. Child, J. H. Napper.
Ashburner: Reginald, B.Arch.(L'pool), (Liverpool Sch. of Arch., Univ. of Liverpool), 58 Irwin Road, Sutton, St. Helens, Lancs. William Ellis, Prof. R. Gardner-Medwin, R. R. Young.
Aylett: Cliff. W. (Special Final), 64 Kenwood Gardens, Ilford, Essex. Frederick Gibberd, A. E. Kelsey, R. J. Double.
Bailey: Martin, Dipl.Arch. (U.C.L.), (Bartlett Sch. of Arch.: Univ. of London), 12 Gray's Inn Square, W.C.1. W. H. Ansell, H. Lidbetter, D. H. McMorran.
Baker: Derek Louis John, (Final), 10 Oxford Avenue, Heston, Middlesex. E. M. Rice, Arthur Korn, Dr. R. Herz.
Baker: Kenneth Noel, (Final), 'Mayfair', 10 Watt Street, Southcoates Lane, Hull, Yorks. Lieut.-Colonel J. P. Taylor, J. Konrad, H. D. Priestman.
Bandekar: Chandrakant Baburao, (Special Final), 1 Rosemont Mansions, Lithos Road, N.W.3. Applying for nomination by the Council under Bye-law 3(*d*).
Barden: Kenneth, A.R.C.A., (Final), 25 Hyde Road, Sanderstead, Surrey. C. W. Box, S. J. Lloyd, J. K. Hicks.
Barfield: Bernard, (Special Final), 57 Guilford Drive, Wigston, Leicester. T. A. Collins, G. A. Cope, F. H. Jones.
Barrie: James, (Final), 3 Garngour Road, Lesmahagow, Lanarkshire. L. W. Hutson, Stuart Clink, Samuel McColl.
Bashford: Norman Hardy, (Special Final), 22 Palace Road, Bromley, Kent. Thomas Bilbow, A. V. Elliott, K. J. H. Seymour.
Bateman: Bernard, Dipl.Arch.(U.C.L.), (Bartlett Sch. of Arch: Univ. of London), 10 Osborne Street, Bletchley, Bucks. Prof. H. O. Corfiato, R. C. White-Cooper, R. B. Craze.
Baxter: Robert Charles, (Special Final), Denver Hotel, North Road, Plymouth. E. U. Channon, S. R. Edwards, F. H. Allen.
Binner: Harry Eastwood, (Final), 17 Bramber Close, Sompting, Lancing, Sussex. C. W. Box, K. E. Black, R. F. Daviel.
Birnie: George, D.A.(Edin.), (Edinburgh Coll. of Art: Sch. of Arch.), 152 North Saughton Road, Edinburgh 12. George Reid, T. W. Marwick, Esme Gordon.
Bodas: Vasant Vasudeo, (Special Final), 78 Dartmouth Road, N.W.2. E. M. Fry, P. H. P. Bennett, Sir Thomas Bennett.

Bose: Ratneswar, D.A.Dip.T.P.(Glas.) (Glasgow Sch. of Arch.), 54 Cecil Street, Glasgow, W.2. Prof. W. J. Smith, A. G. Jury, A. D. Cordiner.

Bracey: Derek, Dip.Arch.(Sheffield), (Univ. of Sheffield, Dept. of Arch.), 'Berries', Little Baddow, Chelmsford, Essex. Prof. Stephen Welsh, Harold Conolly, Denis Senior.

Brennan: Brian, (Final), 2 Church Street, Listowel, Co. Kerry, Ireland. Raymond McGrath, J. O'H. Hughes, Vincent Kelly.

Brinkhurst: Frank Robert, (Final), 170 London Road, East Grinstead, Sussex. Ronald Ward and applying for nomination by the Council under Bye-law 3 (*d*).

Bromley: Cyril John, Dipl.Arch(Canterbury), (Final), 14 Douglas Road, Dover, Kent. L. M. Gotch, C. J. F. Martindale, Arthur Wilkinson.

Broughton: Brian John, (Final), 25 Ox Lane, Tenterden, Kent. E. T. A. Smith, R. T. Green, L. H. McDermott.

Brown: Graham Arthur, (Final), 43 Birchall Road, Bristol 6. George Ford, A. C. Hopkinson, J. C. Clavering.

Bryan: Eugene Roy, (Final), 41 Springdale Road, Stoke Newington, N.16. C. G. Bath, Cedric Ripley, T. E. Scott.

Buckhurst: Paul Sutherland, Dipl.Arch. (Canterbury), (Final), 'Gravitts', Boughton Monchelsea, Maidstone, Kent. Basil Spence, Richard Sheppard and applying for nomination by the Council under Bye-law 3(*d*).

Bull: David Leslie, (Final), 82 Chichester Road, Portsmouth, Hants. A. C. Townsend, F. Mellor, J. V. Quarmby.

Burrell: John Scott, (Special Final), 10 Mount Grove, High Barnes, Sunderland, Co. Durham. Prof. W. B. Edwards, Bruce Allsopp, G. E. Charlewood.

Butler: John Lionel, (Final), 9 Amerland Road, S.W.18. Frank Scarlett, H. D. Hendry, S. W. J. Smith.

Buttle: George Marshall, (Special Final), 2 Carrick Road, East Kilbride, Lanarkshire, L. D. Paterson, J. A. Coia, Samuel McColl.

Button: Roger Martin, M.A.(Cantab.), (Final), 19 Beaumont Court, Beaumont Street, W.1. Basil Spence, J. S. Walkden, G. M. Adie.

Cade: William Brian, (Special Final), 'Cherry Hinton', Sandstock Road, Stockton Lane, York. C. R. Thorp, E. Firth, C. W. C. Needham.

Campbell: Victor Ottwell, (Special Final), 24 Parkmount Road, Belfast, Northern Ireland. Applying for nomination by the Council under Bye-law 3(*d*).

Caneparo: John Paul, (Final), 20 Lynwood Road, Ealing, W.5. Paul Nightingale, Arthur Korn, Dr. R. Herz.

Carroll: Godfrey Joseph, (Final), 'Santa Barbara', 124 Broadwater St. West, Worthing, Sussex. K. E. Black, R. F. Daviel, C. W. Box.

Carter: Oliver Frederick, (Final), 11 Darington Road, Withington, Manchester 20. Cecil Stewart, J. G. McBeath, Prof. Clifford Holliday.

Castle: Thomas Edmund, (Final), 23 Blakesley Avenue, Ealing, W.5. Applying for nomination by the Council under Bye-law 3(*d*).

Charles: Rupert, (Final), 28a Kensington Church Street, W.8. Sidney Kaye, D. L. Solomon, E. H. Firmin.

Chau: Kai-Heem, B.Sc.(Eng.), (Hong Kong), B.Arch.(Dunelm), (King's Coll. (Univ. of Durham), Newcastle upon Tyne, Sch. of Arch.), 66 Hartington Court, Lansdowne Way, S.W.8. Prof. W. B. Edwards, J. H. Napper, S. E. T. Cusdin.

Church: Derek George Ames, (Final), Pandora, Pilgrims Road, North Halling, Rochester, Kent. Derek Buckler, E. T. A. Smith, R. T. Green.

Clamp: Henry, (Special Final), 2 Banks Avenue, Wakefield Road, Pontefract, Yorks. A. W. Glover, F. Chippindale, Kenneth Turner.

Cochrane: John Morton, D.A.(Glas.), (Glasgow Sch. of Arch.), 19 Woodrow Road, Pollokshields, Glasgow, S.1. Prof. W. J. Smith, W. A. P. Jack, G. W. Robertson.

Cook: James, D.A.(Edin.), (Edinburgh Coll. of Art: Sch. of Arch.), 9 Elliot Street, Edinburgh. J. Holt, W. G. Dey, T. W. Marwick.

Corbett: Victor Lindsay, (Special Final), 29 King's Brae, Knock, Belfast, N. Ireland. R. H. Gibson, E. D. Taylor, B. Cowser.

Costello: John Audoen, B.Arch.(N.U.I. Dublin), (Univ. Coll., Dublin, Ireland: Sch. of Arch.), 20 Herbert Park, Dublin, Ireland. Prof. J. V. Downes, J. O'H. Hughes, W. A. Maguire.

Coveney: John E. (Special Final), 8 Belgrave Road, Rathmines, Dublin, Ireland. Raymond McGrath, J. J. Robinson, J. O'H. Hughes.

Cowling: Raymond, Dipl.Arch.(Leeds), (Leeds Sch. of Arch.), 3 Low Green, Darley, Harrogate, Yorks. F. Chippindale, D. A. Fowler, J. S. Beaumont.

Cox: Gordon Edgar Frederick, (Final), 10 Torrington Drive, Potters Bar, Middx. J. S. Walkden, Clifford Culpin, S. E. Bragg.

Crews: Desmond Thomas, (Final), 15 Court Crescent, Kingswinford, Staffs. W. J. Reed, J. T. Lewis, W. A. Woodland.

Cross: Thomas Anthony, (Special Final), 'Arrochar', Melton Road, Northfield, Wymondham, Norfolk. E. R. Crane, J. B. Noble, A. G. Berry.

Dadge: Neil Jordan, (Final), 11 Elm Park Road, S.W.3. Applying for nomination by the Council under Bye-law 3(*d*).

Davies: William Donald, (Final), 21 St. Leonard's Road, Surbiton, Surrey. Applying for nomination by the Council under Bye-law 3(*d*).

Davy: Donald Keith, (Special Final), 4 Cowrakes Lane, Whiston, Rotherham, Yorks. Prof. John Needham, H. B. Leighton, Prof. Stephen Welsh.

de Max: Maurice Montague, (Special Final), 13 Melville Court, Goldhawk Road, W.12. Carl Fisher, H. E. Foreman, D. D. Harrison.

Dinsdale: John Singleton, (Special Final), 38 Bridge House South, Boston Manor Road, Brentford, Middx. Paul Nightingale, Arthur Korn, Edwin Rice.

Dodridge: John, (Special Final), 29a Wyndham Avenue, Cobham, Surrey. Edwin Rice, and applying for nomination by the Council under Bye-law 3(*d*).

Drury: Robert Benson, (Special Final), 81 Rievaulx Avenue, Billingham, Co. Durham, F. A. Perren, Lieut.-Colonel J. P. Taylor, J. P. Rudd.

Dunkley: Michael Charles, (Final), 'White Posts', St. Nicolas Lane, Chislehurst, Kent. C. W. Lowe, Cedric Ripley, Laurence Kennard.

Elves: Gerald James, (Final), 57 Colston Avenue, Carshalton, Surrey. Applying for nomination by the Council under Bye-law 3(*d*).

Elwell: Thomas, (Special Final), 313 New Birmingham Road, Dudley, Worcs. J. T. Lewis, J. F. R. Gooding, K. A. Lloyd.

Evans: John Dennis, Dip.Arch.(Cardiff), (Welsh Sch. of Arch., The Tech. Coll., Cardiff), 36 Glanbrydan Avenue, Uplands, Swansea, Glam. Lewis John, G. H. Griffiths, D. G. Walton.

Fairbanks: John Kemble, (Special Final), 442 London Road, Westcliff-on-Sea, Essex. P. F. Burridge, J. M. Scott, L. J. Selby.

Farrar: Alexander Haley, 76 Lawrence Road, Hove 3, Sussex. K. E. Black, F. F. Howard, W. J. Thrasher.

Faulkner: Kenneth, (Final), 35 Ulleswater Street, Leigh, Lancs. Ernest Prestwich, R. M. McNaught, A. J. Hope.

Fellender: Lister Herbert, (Special Final), 39 Westfield Road, Studley Green, Trowbridge, Wilts. A. D. Kirby, R. E. E. Beswick, P. W. Edwards.

Fenwick: Gordon Frederick, (Special Final), 14 Vermont Street, Beverley Road, Hull, Yorks. Lieut.-Colonel J. P. Taylor, W. G. Wilson, J. Konrad.

Fitzgerald: Joseph Bernard, D.A., (Dundee), (Dundee Coll. of Art. Sch. of Arch.), 35 Guthrie Street, Dundee. A. F. S. Wright, Chessor Matthew, T. H. Thoms.

Fox: William Ernest, (Special Final), 5a Belmont, Shrewsbury, Shropshire. C. W. McIntosh, A. G. Chant, Lieut.-Colonel Douglas Hall.

Freeman: Harvey, (Final), 201 Tulketh Road, Preston, Lancs. Cecil Stewart, E. S. Benson, Edgar Sutcliffe.

French: David John, (Final), 4 Quinces Croft, Gadebridge, Hemel Hempstead, Herts. John Batty, J. S. Walkden, H. K. Ablett.

Friend: Ronald Charles, (Special Final), 42 Dunlace Road, Clapton, E.5. F. R. S. Yorke, G. E. Cassidy, H. A. Clark.

Gibbons: Donald Charles, (Final), 106 Berkeley Avenue, Chesham, Bucks. Norman Keep, E. S. North, L. C. Powell.

Gibbs: Vernon Dennis, (Final), Bleadney, Near Wells, Somerset. T. H. B. Burrough, James Melvin, Basil Spence.

Giddens: Kenneth Conor, (Final), 70 Parkhill Road, Bexley, Kent. Applying for nomination by the Council under Bye-law 3(*d*).

Girling: Anthony Francis, (Special Final), The Garden Flat, 1 The Gables, Vale of Health, Hampstead, N.W.3. Edwin Rice, Dr. R. Herz, Kenneth Anns.

Gladwell: Peter William, (Final), 7 Primrose Terrace, Gravesend, Kent. H. G. Coulter, Arthur Wilkinson, J. W. Buchanan.

Gleave: John Geoffrey, B.A. (Manchester), (Victoria Univ., Manchester: Sch. of Arch.), 'Four', South Meade, Timperley, Cheshire. Prof. R. A. Cordingley, Dr. W. A. Singleton, E. S. Benson.

Goodman: Robert Howard, Dipl.Arch. (Northern Polytechnic), (Northern Poly. (London): Dept. of Arch.), Ashley Cottage, Newark Lane, Ripley, Surrey. T. E. Scott, Philip Powell, Hidalgo Moya.

Gordon: Frank Kevin Michael, A.A.Dipl. (Arch. Assoc.(London): Sch. of Arch.), Gorbyrne, Longden Road, Shrewsbury, Shropshire. Arthur Korn, R. D. Hammett, C. A. R. Norton.

Grant: Henry David, (Final), 21 Monmouth Road, Wallasey, Cheshire. T. A. Brittain, A. S. Barnes, R. H. Kelly.

Green: James Bernard, (Special Final), 148 Etherstone Street, Leigh, Lancs. R. M. McNaught, A. J. Hope, Ernest Prestwich.

Griffiths: John Michael, (Special Final), 15 Beechwood Close, Ascot, Berks. G. A. Crockett, E. M. Joseph, Laurence Fermaud.

Hackworth: John, Dipl.Arch(Northern Polytechnic), (Northern Poly. (London): Dept. of Arch.), 'Wroxham Lodge', Stockwell Park Road, S.W.9. T. E. Scott, C. G. Bath, S. F. Burley.

Hambrook: Albert William Frederick, (Final), 41 Gilda Crescent, Whitchurch, Bristol, 4. W. H. Watkins, R. F. Reekie, Mrs. L. M. Reekie.

Hampden: Christopher John, Dipl.Arch. (Kingston), (Sch. of Art, Kingston upon Thames: Dept. of Arch.), 1 Highcroft, Milford, Surrey. W. Crabtree, and applying for nomination by the Council under Bye-law 3(*d*).

Hares: John Philip, (Special Final), 1 Cliff Gardens, Bridgnorth, Shropshire. G. A. G. Miller, A. R. Twentyman, K. A. Lloyd.

Harris: Brian, (Final), 32 Passmonds Crescent, Rochdale, Lancs. P. G. Fairhurst, D. L. Dick, Cecil Stewart.

Hart: Robert Phipps, A.A.Dipl.(Arch.Assoc. (London): Sch. of Arch.), 15a Rosamond Road, Bedford, Beds. S. V. Goodman, W. G. Walmsley, John Gedge.

Haydon: Roy William, (Special Final), 64 Olive Road, New Costessey, Norwich. G. W. Oak. J. B. Noble, E. R. Crane.

Hearse: Maurice Edward, (Final), 3 Gilda Square East, Wells Road, Bristol 4. A. H. Clarke, A. R. Mackness, T. H. B. Burrough.

Hewitt: Derek Vaughan, Dipl.Arch.(U.C.L.), (Bartlett Sch. of Arch. Univ. of London), 5 Esplanade, St. Helier, Jersey, C.I. Prof. H. O. Corfiato, Thomas Ritchie, H. F. Hoar.

Hiscocks: Barry Gordon, (Final), 16 Henleaze Park Drive, Henleaze, Bristol. T. H. B. Burrough, E. H. Button, F. L. Hannam.

Honey: Alan Edward, (Special Final). 11 St. Margaret's Avenue, South Harrow, Middx. A. V. Banks, C. E. W. Boreham, T. E. Scott.

Hooper: Raymond John, (Final), 40 High Road, Buckhurst Hill, Essex. L. L. Lipski, H. D. Matthew, George Coles.

Hopewell: John Barnet, A.A.Dipl.(Arch. Assoc.(London): Sch. of Arch.) 47b Prince of Wales Mansions, Prince of Wales Drive, Battersea, S.W.11. E. M. Fry, Miss J. B. Drew, D. L. Lasdun.

Houghton: Reginald George Harold, (Final), 12 Station Road, East Grinstead, Sussex. H. G. Stanham, K. E. Black, F. F. Howard.

Hutchinson: Ernest George, (Special Final), 170 Church Hill Road, Cheam, Surrey. Frankland Dark, T. A. Eaton, Philip Powell.

Imrie: Andrew, (Final), 24 Allan Park, Stirling. T. J. Bell, Prof. W. J. Smith, T. J. Beveridge.

Jack: William, Dip.Arch.(Abdn.), (Aberdeen Sch. of Arch: Robert Gordon's Tech. Coll.), St. John's Wood, Nr. Peterhead, Aberdeenshire. E. F. Davies, A. B. Gardner, John Maclennan.

Jackman: Francis Patrick, B.Arch.(N.U.I. Dublin), (Univ. Coll. Dublin; Ireland: Sch. of Arch.), 'Arcadia', Priests Road, Tramore, Co. Waterford, Ireland. Sir Howard Robertson, J. M. Easton, S. E. T. Cusdin.

Jadhav: Arun Shantaram, (Final), 47 Cartwright Gardens, Russell Square, W.C.1. Applying for nomination by the Council under Bye-law 3(*d*).

Jaiyesimi: Samuel Oluyemi, Dipl.Arch. (Northern Polytechnic), (Northern Poly. (London): Dept. of Arch.), 36 Highbury Hill, N.5. C. G. Bath, Anthony Cox, J. M. Grice.

Jarrett: William Edward, A.A.Dipl.(Arch. Assoc.(London): Sch. of Arch.), 27 Perrins Walk, Hampstead, N.W.3. Arthur Korn, J. M. Austin-Smith, Mrs. I. L. E. Austin-Smith.

Jeffery: Michael Wilson, B.Arch.(Dunelm), (King's Coll., (Univ. of Durham), Newcastle upon Tyne, Sch. of Arch.), 12 Armstrong Avenue, Heaton North, Newcastle upon Tyne, 6. Prof. W. B. Edwards, Prof. J. S. Allen, J. H. Napper.

Jenner: Gordon John, (Final), 46 Parkway, Raynes Park, S.W.20. Paul Nightingale, R. R. Wilkins, D. Nightingale.

Jones: Albert Frederick, (Special Final), 'Ramslye', 5 Willersley Avenue, Orpington, Kent. Arthur Wilkinson, L. M. Gotch, H. B. Elkington.

Jones: Kenneth Edward, (Special Final), 30 Argyll Avenue, Curzon Park, Chester, Cheshire. E. M. Parkes and applying for nomination by the Council under Bye-law 3(*d*).

Jones: Peter Stenson, (Special Final), The View, Twyford, Nr. Winchester, Hants. William Sadler, A. P. Gainsford, P. R. Sawyer.

Judd: Miss Shirley Valerie, (Final), Flat 5, 7 Warwick Square, S.W.1. W. Crabtree, Anthony Cox, T. S. Wood.

Jupp: Keith Edward John Austen, (Special Final), 21 King Street, Brighton, Sussex. K. E. Black, R. F. Daviel, S. H. Tiltman.

Kaberry: Anthony Russell, (Final), 22 Wasp Avenue, Balderstone, Rochdale, Lancs. Cecil Stewart, F. L. Halliday, B. L. Moir.

Kennedy: Cecil Frederick, (Special Final), 'Tyrol', Whitehouse Park, Newtownabbey, Co. Antrim, N. Ireland. R. H. Gibson, E. D. Taylor, Val Smyth.

Kennedy: James Braid, D.A.(Dundee), (Dundee Coll. of Art: Sch. of Arch.), 1 Easson's Angle, Dundee. Chessor Matthew, T. H. Thoms, A. F. S. Wright.

Kerr: William, D.A.(Glas.), (Glasgow Sch. of Arch.), 9 McKellar Avenue, Ardrossan, Ayrshire. Prof. W. J. Smith, Walter Underwood, A. D. Cordiner.

King: Miss Jill Margaret, (Final), Heasewood Farmhouse, Haywards Heath, Sussex. Ronald Ward, Norman Royce, Victor Wilkins.

Kirk: Anthony John, Dip.Arch.(Hull), (Sch. of Arch. Regional Coll. of Art, Hull), 50 Harvest Bank Road, West Wickham, Kent. J. Konrad, H. D. Priestman, W. G. Wilson.

Knott: Clement James, Dip.Arch.(Leics.), (Leicester Coll. of Art and Tech.: Sch. of Arch.), 58 Gopsall Street, Highfields, Leicester, F. Chippindale, G. A. Cope, L. L. Lipski.

Kozik: Mieczyslaw Joseph, (Special Final), 190 Manor Grove, Richmond, Surrey. Applying for nomination by the Council under Bye-law 3(*d*).

Laidlaw: James Robertson, D.A.(Edin.), (Edinburgh Coll. of Art: Sch. of Arch.), 2 Ashley Grove, Edinburgh, 11. David Carr, Prof. R. H. Matthew, J. R. McKee.

Lakin: James Milne, (Final), 51 Moordown, Shooters Hill, S.E.18. A. R. Borrett, Edwin Williams, K. L. Sharpe.

Lamb: Derek Arthur, Dip.Arch.(Cardiff), (Welsh Sch. of Arch.: The Tech. Coll., Cardiff), 294 Cowbridge Road East, Cardiff. Lewis John, Dr. T. A. Lloyd, Sir Percy Thomas.

Law: Thomas Stuart, D.A.(Edin.), (Edinburgh Coll. of Art: Sch. of Arch.), 98 Gilmore Place, Edinburgh 3. Esme Gordon, W. H. Kininmonth, W. G. Dey.

Lawes: William, (Special Final), 107 Warren Road, Whitton, Middx. H. S. Gardiner, Col. S. H. Fisher, Eric Lyons.

Lawrie: Gerald Charles Hindley, Dipl.Arch. (Northern Polytechnic), (Northern Poly. (London): Dept. of Arch.), 89 Whittington Road, N.22. T. E. Scott, Charles Pike, C. G. Bath.

Leeson: James Patrick D. A. (Dundee), (Dundee Coll. of Art: Sch. of Arch.), 'Mountview', 225 Finaghy Road North, Finaghy, Belfast, N. Ireland. Applying for nomination by the Council under Bye-law 3(*d*).

Lelliott: Christopher George, Dipl.Arch. (U.C.L.), (Bartlett Sch. of Arch.: Univ. of London), 23 Eastfield Avenue, Basingstoke, Hants. Prof. H. O. Corfiato, R. C. White-Cooper, A. M. Foyle.

Lester: Miss Alice Meriel, (Final), Hillpool, Blackhorse Road, Crastock, Woking, Surrey. Sir Thomas Bennett, P. H. P. Bennett, M. L. Winslade.

Lewis: John Owain, (Special Final), 6 Haslin Crescent, Christleton, Chester. E. M. Parkes and applying for nomination by the Council under Bye-law 3(*d*).

Lightowler: Henry Charles, (Special Final), Hazelgates, Crispin Way, Farnham Common, Bucks. R. R. Wilkins, R. B. Craze, D. Nightingale.

Linton: Eric Irving, (Final), 'Morello', 48 Altys Lane, Ormskirk, Lancs. F. X. Velarde, G. N. Hill, G. S. Pester.

Lister: Derek Chappelow, (Special Final), 'Healds House', 128 Healds Road, Dewsbury, Yorks. Kenneth Turner, D. A. Fowler, F. Chippindale.

Loggie: James Jamieson, D.A.(Glas.), (Glasgow Sch. of Arch.), 6 Stirrat Street, Paisley, Scotland. R. H. Gibson, E. D. Taylor, D. A. Shanks.

Luke: Colin Keith, (Final), 'Arncliff', View Lane, Stanley, Co. Durham. Prof. W. B. Edwards, F. Fielden, Bruce Allsopp.

McFadzean: Ronald, D.A.(Glas.), (Glasgow Sch. of Arch.), 75 Milverton Road, Whitecraigs, Renfrewshire. William McCrea, Prof. W. J. Smith, A. D. Cordiner.

Mackenzie: Alexander John, (Special Final), 22 Princes Square, W.2. Applying for nomination by the Council under Bye-law 3(*d*).

McNay: David Alexander Barclay, (Special Final), 'Arundel', Park Road, Scotby, Carlisle. A. R. C. Johnston, C. B. Martindale, J. H. Haughan.

Main: Christopher John, B.Arch.(L'pool), (Liverpool Sch. of Arch. Univ. of Liverpool), 38 Holland Park Avenue, W.11. Miss J. G. Ledeboer, Hubert Bennett, A. R. Borrett.

Mair: Frederick John Malcolm, (Final), 20 Belsize Park Gardens, N.W.3. E. L. Gale, Prof. Sir William Holford, E. A. Day.

Makepeace: Philip Edwin, (Final), 3 Station Road, Knowle, Warwickshire. A. V. Banks, J. Ellis, H. W. E. Lindo.

Marsden-Smedley: Christopher, B.A.(Arch.) (Lond.), (Bartlett Sch. of Arch.: Univ. of London), 26 Draycott Place, Chelsea, S.W.3. Prof. H. O. Corfiato, R. C. White-Cooper, A. M. Foyle.

Marsh: Geoffrey, (Final), 142 Rickerscote Road, Stafford. G. A. G. Miller, A. R. Twentyman, K. A. Lloyd.

Marsh: John Edward, (Final), 40 Poplar Grove, New Malden, Surrey. Leo De Syllas, Philip Powell, Hidalgo Moya.

Matthews: Anthony James, (Final), 168 Dumbreck Road, Eltham, S.E.9. Applying for nomination by the Council under Bye-law 3(*d*).

Mawhinney: James Atkinson, (Special Final), 'Islanderry', 26 Massey Avenue, Stormont, Belfast, N. Ireland. J. H. Swann, E. D. Taylor, D. A. Shanks.

Metcalfe: Gordon, (Final), 4 Tennis Street, Burnley, Lancs. Cecil Stewart, E. S. Benson, John Taylor.

Middleton: John Stuart, (Final), 'Lyndhurst', Rochdale Road East, Heywood, Lancs. Cecil Stewart, L. C. Howitt, Edgar Sutcliffe.

Miller: John Harmsworth, A.A.Dipl.(Arch. Assoc.(London) Sch. of Arch.), 27 Park Crescent, W.1. Arthur Korn, M. H. Cooke-Yarborough, Leo De Syllas.

Mitchell: John Trevor, (Final), 769 Anlaby High Road, Kingston upon Hull, Yorks. J. Konrad, W. G. Wilson, Allanson Hick.

Mole: Antony John, Dipl.Arch(U.C.L.) (Bartlett Sch. of Arch.: Univ. of London), 40 Bridgefield, Farnham, Surrey. Prof. H. O. Corfiato, Thomas Ritchie, A. M. Foyle.

Mollison: Hugh Dalgety, (Final), 45 The Drive, Sevenoaks, Kent. T. F. Ford, C. J. Epril, A. H. Devereux.

Moore: Jack, (Final), 12 Flanshaw Road, Wakefield, Yorks. Applying for nomination by the Council under Bye-law 3(*d*).

Morgan: Vernon John, (Special Final), 26 St. John's Crescent, Rogerstone, Mon. Johnson Blackett, C. F. Bates, C. H. Francis.

Morris: Anthony Edwin James, Dipl.Arch. (U.C.L.), (Bartlett Sch. of Arch.: Univ. of London), 'Swallowfield', Hammers Lane, Mill Hill, N.W.7. Prof. H. O. Corfiato, R. C. White-Cooper, C. W. J. Smeed.

Morris: Walter Harold Frederic, (Final),

51 Whitchurch Road, Chester. Raglan Squire, P. H. Lawson, J. A. Haddy.

Morrison: David Alan, (Special Final), 8 Duchray Drive, Ralston, Paisley, Renfrewshire. W. J. B. Wright, A. B. Campbell, Walter Underwood.

Munday: Alfred Hugh, Dipl.Arch.(Oxford), (Sch. of Tech. Art and Commerce, Oxford: Sch. of Arch.), 23 Stansfeld Place, Wood Farm, Headington, Oxford. Reginald Cave, H. W. Smith, T. W. Knight.

Murphy: Eamonn, (Final), 15 Mornington Road, Ranelagh, Dublin. W. J. Cantwell, J. J. Robinson, W. A. Maguire.

Murray: Kenneth, (Final), 14 Silvester Road, Chorley, Lancs. R. M. McNaught, Frank Bradley, A. J. Hope.

Murtagh: Alexander Thomas Henry, Dipl. Arch.(Kingston), (Sch. of Art, Kingston upon Thames: Dept. of Arch.), 'Kimberley', Wrythe Green, Carshalton, Surrey. Applying for nomination by the Council under Bye-law 3(*d*).

Nadodwalla: Dhunjishah Sorabji, (Final), 20 Lynton Road, Acton, W.3. Bernard Engle and applying for nomination by the Council under Bye-law 3(*d*).

Noakes: Anthony John, B.A.(Arch.)(London), (Bartlett Sch. of Arch. Univ. of London), 36 Townsend Avenue, Southgate, N.14. Prof. H. O. Corfiato, R. C. White-Cooper, A. M. Foyle.

Norman: Trevor Gail Goodier, (Special Final), 6 Irving Close, Woodsmoor, Stockport. H. T. Seward, Cecil Stewart, L. C Howitt.

Nugent: Robin George Colborne, (Final), 53 Bedford Square, W.C.1. S. E. T. Cusdin, J. M. Easton, F. L. Preston.

O'Brien: Gerard Patrick, B.Arch.(N.U.I. Dublin). (Univ. Coll. Dublin, Ireland: Sch. of Arch.), 9 Ormerod Road, Stoke Bishop, Bristol, 9. W. A. Maguire, W. J. Cantwell, Prof. J. V. Downes.

Olley: Richard James, A.A.Dipl.(Arch. Assoc.(London): Sch. of Arch.), Flat No. 2, 22 Rose Hill, Braintree, Essex. Harold Conolly, Denis Senior, G. R. Fordham.

Opher: Philip Fane, A.A.Dipl.(Arch. Assoc. (London): Sch. of Arch.), Basement, 28 Elsworthy Road, N.W.3. A. H. Ley, Arthur Korn, A. L. Luke.

Otter: Christopher John, Dipl.Arch.(Oxford), (Sch. of Tech. Art and Commerce, Oxford Sch. of Arch.), 9 Alma Place, Oxford. Reginald Cave, K. A. Stevens, T. W. Knight.

Owen: Dennis Roy, A.R.I.C.S. (Special Final), 29 Woodstock Road North, St. Albans, Herts. A. H. Devereux, Laurence King, Prof. H. O. Corfiato.

Paine: Alan Charles, (Final), 283 London Road South, Lowestoft, Suffolk. E. H. Skipper, C. J. Tomkins, S. W. Mobbs.

Parkinson: Brian Michael Gerard, (Special Final), 'Little Rising', Weston Road, Failand, Nr. Bristol. T. H. B. Burrough, F. L. Hannam, E. H. Button.

Parsons: Michael Patrick, Dipl.Arch. (U.C.L.), (Bartlett Sch. of Arch.: Univ. of London), Flat 9, 183 Gower Street, N.W.1. Prof. H. O. Corfiato, R. C. White-Cooper, A. M. Foyle.

Patel: Chandrakant Gulabdas, (Final), c/o. Peter Biggs, Esq., 75 Five Acres, Northgate, Crawley, Sussex. Edward Playne and applying for nomination by the Council under Bye-law 3(*d*).

Paterson: Thomas Allan, (Final), 1446 Shettleston Road, Glasgow, E.2. Prof. W. J. Smith, A. G. Jury, A. D. Cordiner.

Pearson: Captain Charles Edward, (Special Final), 30 Worcester Avenue, Leyland, Lancs. John Watt, F. N. Pinder, H. D. Dodd.

Penn: Anthony Willis, Dip.Arch.(Birm.), (Birmingham Sch. of Arch.), 'Oaksway', Rounds Hill, Kenilworth, Warwickshire. Arthur Ling, A. Douglas Jones, F. W. B. Charles.

Peverley: John Richard, Dipl.Arch.(Canterbury), (Final), 257 Folkestone Road, Dover, Kent. Basil Spence, Richard Sheppard and applying for nomination by the Council under Bye-law 3(*d*).

Phillips: Frederick Brian, (Final), Architect's Department, County Hall, Newport, Isle of Wight. Vernon Aldridge, L. E. Gregory, Ernest Bird.

Phimister: Donald MacKay, D.A.(Dundee), (Dundee Coll. of Art: Sch. of Arch.), Nordwall, Reiss, Wick, Caithness. A. G. Henderson, G. F. Shanks, Walter Underwood.

Pickering: Michael Noel, A.A.Dipl.(Arch. Assoc.(London): Sch. of Arch.), 10 Clock Street, Portsea, Portsmouth, Hants. Arthur Korn, David Jenkin, Hubert Bennett.

Pitches: Grant Keith, Dip.Arch.(Leics.), (Leicester Coll. of Art and Tech.: Sch. of Arch.), 'Lyndhurst', 43 Eachard Road, Cambridge. J. H. L. Owen, W. J. Prince, M. W. Pike.

Pradhan: Arvind Shrikrishna, (Final), 10 Crossfield Road, N.W.3. Applying for nomination by the Council under Bye-law 3(*d*).

Priestley: Geoffrey, (Final), 66 Westgate, Cleckheaton, Yorks. W. C. Brown, E. D. Jordan, Eric Morley.

Pursey: David Howard Clifford, Dipl.Arch. (Northern Polytechnic), (Northern Poly. (London): Dept. of Arch.), Castle Malwood Park, Minstead, Nr. Lyndhurst, Hampshire. T. E. Scott, C. G. Bath, M. W. Jones.

Quarmby: Arthur, Dipl.Arch.(Leeds), (Leeds Sch. of Arch.), Lane House, Holmfirth, Nr. Huddersfield, Yorks. F. Chippindale, Kenneth Turner, J. G. Berry.

Reading: Lee, (Final), 1178a High Road, N.20. Allan Johnson, N. E. S. Morris, H. Bramhill.

Redmond: Leslie, (Special Final), 51 Kingsway Park, Cherryvalley, Belfast, N. Ireland. D. A. Shanks, E. D. Taylor, Val Smyth.

Reid: Alistair Moray, Dip.Arch.(Leics.), (Leicester Coll. of Art and Tech.: Sch. of Arch.), 32 Queniborough Road, Queniborough, Leicestershire. S. Penn Smith, G. A. Cope, F. Chippindale.

Reid: William Finlay, Dipl.Arch.(Leeds), (Leeds Sch. of Arch.), 25 Rosemary Park, Upper Malone, Belfast. F. Chippindale, Val Smyth, Benjamin Cowser.

Ribeiro: Edgar Francis Noel, (Final), Department of Town and Country Planning, The University, Manchester 13. R. T. Boutall, Prof. Clifford Holliday, A. C. Hopkinson.

Richardson: Carl John, (Final), 9 Corsham Road, Southend-on-Sea, Essex. J. M. Scott, G. G. Shenstone, P. F. Burridge.

Richmond: John Michael, (Final), 80 Markland Road, Dover, Kent. Applying for nomination by the Council, under Bye-law 3(*d*).

Roberts: Richard John, (Special Final), 'Mewslade', 43 Cropwell Road, Radcliffe-on-Trent, Nottingham. T. A. Collins, Ernest Frear, E. W. Roberts.

Robinson: Kenneth Rothwell, (Special Final), 13 Old Kiln Lane, Bolton, Lancs. R. M. McNaught, A. J. Hope, Frank Bradley.

Robinson: Victor Holland, (Final), Breda House, Newtownbreda, Co. Down, N. Ireland. R. H. Gibson, E. D. Taylor, D. A. Shanks.

Ryan: James Matthew, B.Arch.(N.U.I., Dublin), (Univ. Coll., Dublin, Ireland: Sch. of Arch.), Ballymahon, Co. Longford, Ireland. Sir Howard Robertson, J. M. Easton, S. E. T. Cusdin.

Sadler: Michael Russell, Dipl.Arch.(Kingston), (Sch. of Art, Kingston upon Thames: Dept. of Arch.), 47 Upper Court Road, Epsom, Surrey. Applying for nomination by the Council under Bye-law 3(*d*).

Savage: Stanley Kane, (Final), 243 Abbots Cross, Doagh Road, Newtownabbey, Co. Antrim, N. Ireland. Applying for nomination by the Council under Bye-law 3(*d*).

Savage: William James, (Final), 24 Londonderry Avenue, Comber, Co. Down, N. Ireland. R. H. Gibson, E. D. Taylor, B. Cowser.

Scott: Peter Stuart, (Final), 33 Priests Avenue, Romford, Essex. Frank Risdon, R. C. Arnold, Philip Powell.

Sharp: Leonard Stanley, (Special Final), 44 Devon Drive, Sherwood, Nottingham. Norman Summers, C. F. W. Haseldine, J. W. M. Dudding.

Shryane: John, (Final), 33 Freehold Street, Newcastle, Staffs. Clifton Edwards, J. R. Piggott, D. C. Campbell.

Silvester: Silvanus Alfred John, (Special Final), 'Adelohn', Lassington Lane, Highnam nr. Gloucester. D. S. Davis, Colonel N. H. Waller, H. F. Trew.

Smith: Alan Thomas, Dip.Arch.(Leics.), (Leicester Coll. of Art and Tech.: Sch. of Arch.), 52 Ruskin Avenue, Lincoln. R. E. M. Coombes, J. W. H. Barnes, R. R. Alexander.

Smith: Harold Shortland, (Special Final), 16 Wathan Avenue, Woodcross, Coseley, Bilston. W. A. Woodland, J. T. Lewis, Harry Cherrington.

Smith: John Shortland, (Special Final), 3 Vicarage Road, Upper Gornal, nr. Dudley, Worcs. A. R. Young, J. T. Lewis, W. A. Woodland.

Smith: Robert Mortimer, (Special Final), 40 St. Edmunds Drive, Stanmore, Middx. S. R. Miller, H. K. Wakeford, Fitzroy Robinson.

Solman: William Sidery, Dipl.Arch.(Northern Polytechnic), (Northern Poly. (London): Dept. of Arch.), 64 Cranworth Gardens, Brixton, S.W.9. T. E. Scott, S. F. Burley, C. G. Bath.

Sowerby: John Malcolm, B.A.(Cantab.), D.A.(Edin.), (Edinburgh Coll. of Art: Sch. of Arch.), 6 Ravenscroft Avenue, Middlesbrough, Yorks. Applying for nomination by the Council under Bye-law 3(*d*).

Spence: Robert Michael MacKenzie, (Final), 'Hill Top', 1175 Chorley Old Road, Bolton, Lancs. Cecil Stewart, Frank Bradley, R. M. McNaught.

Spratley: John Arthur Raymond, (Special Final), 16 Sheen Park, Richmond, Surrey. C. W. Box, C. S. White, L. A. Chackett.

Stephens: David Lewin, Dipl.Arch.(Northern Polytechnic), (Northern Poly. (London): Dept. of Arch.), 32 Luddesdon Road, Erith, Kent. A. R. Fox, A. D. Robinson, T. E. Scott.

Stevens: Peter Lewis, (Final), 'Cherrytrees', Greenmeads, Westfield, Woking, Surrey. N. D. Quick, G. I. C. Highet, T. Carr.

Stevens: Reginald Anthony, (Final), 107 Merridale Court, Merridale, Wolverhampton. A. Douglas Jones, Bertram Butler, F. W. B. Charles.

Stevenson: Michael Noel, (Final), Clayhurst, Stockcroft Road, Balcombe, Sussex. A. V. Banks, C. E. W. Boreham, G. A. Gale.

Stocken: Anthony, (Final), 233 Castle Road, Salisbury, Wilts. J. H. Jacob, A. F. French, James Burford.

Stubbings: Reginald Henry, (Final), 17 Park Road, Leyton, E.10. Clive Pascall, F. C. Webster, I. G. Smith.

Stuckey: John Michael, A.A.Dipl.(Arch. Assoc.(London): Sch. of Arch.), 94 Rhode Lane, Bridgwater, Somerset. Arthur Korn, M. Pattrick, David Jenkin.

Sturrock: David Smith, D.A.(Edin.), (Edinburgh Coll. of Art: Sch. of Arch.), Beechgrove Terrace, Limekilns, by Dunfermline, Fife.

Prof. R. H. Matthew, James Shearer, R. F. Hutchison.

Sutherland: Ronald Scott, D.A.(Dundee), (Dundee Coll. of Art: Sch. of Arch.), 10 High Street, Elie, Fife. A. F. S. Wright, Chessor Matthew, W. S. Gauldie.

Swann: Norman Henry, (Final), 4 Haddon Avenue, Skircoat Green, Halifax, Yorkshire. Norman Culley, C. Sunderland, W. C. Brown.

Tanner: Bryan James, (Final), 232 Fawcett Road, Southsea, Hants. A. C. Townsend, G. J. Jolly, J. E. Tyrrell.

Taylor: Antony, (Final), 40 Ashworth Street, Rochdale, Lancs. Cecil Stewart, B. L. Moir, F. M. Reynolds.

Taylor: James Westwood, (Special Final), 13 Bruntsfield Avenue, Edinburgh. J. R. McKay, Esme Gordon, W. G. Dey.

Thrower: Vivian John, (Final), 24 Lyndhurst Avenue, S.W.16. E. R. Taylor, Edwin Williams, R. Wallace-Bateman.

Thurmott: Maurice John, (Leeds Sch. of Arch.), 15 John Street, Clayton, Bradford. F. Chippindale, Kenneth Turner, E. D. Jordan.

Tong: David Ronald, (Final), 280 Henley Road, Caversham, Reading, Berks. Dr. R. Herz, Edwin Rice, and applying for nomination by the Council under Bye-law 3(*d*).

Tranter: Alfred Ernest, (Special Final), 7 Sanctuary Gardens, Stoke Bishop, Bristol 9. A. H. Clarke, A. R. Mackness, F. L. Hannam.

Trezise: Donald John, (Special Final), 4 West Drive, Queens Park, Brighton 7, Sussex. W. J. Thrasher, F. F. Howard, K. E. Black.

Trinder: Gerald Ernest, (Final), 44 Rockland Road, Downend, Bristol. A. V. Banks, H. W. E. Lindo, T. H. B. Burrough.

Tsang: Nai Pok, (Special Final), 108 Oxford Gardens, W.10. Paul Nightingale, Dr. R. Herz, Arthur Korn.

Walker: Leslie James, (Final), 254 Upper Richmond Road West, S.W.14. R. O. Foster, H. D. Matthew, A. J. Power.

Wall: David Terrence, Dipl.Arch.(Northern Polytechnic), (Northern Poly. (London): Dept. of Arch.), 23 Frognal Lane, N.W.3. T. E. Scott, C. G. Bath, S. F. Burley.

Wallace: Ronald Gordon, (Special Final), 4 Lansdowne Road, Ballsbridge, Dublin, Ireland. P. J. Munden, J. G. Butler, Vincent Kelly.

Wann: James, (Final), 89 Eastfield Drive, Penicuik, Midlothian. Applying for nomination by the Council under Bye-law 3(*d*).

Ward: Marshall Henry, (Final), 'Lyndene', 3 Church Lane, Farington, nr. Preston, Lancs. G. N. Hill, G. S. Pester, U. A. Coates.

Warren: John Cecil Turnbull, B.Arch. (Dunelm), (King's Coll. (Univ. of Durham), Newcastle upon Tyne: Sch. of Arch.), 38 Kings Road, Horsham, Sussex. Prof. W. B. Edwards, J. H. Napper, Raglan Squire.

Watson: John David, B.A.(Arch.)(Lond.), (Bartlett Sch. of Arch.: Univ. of London), Flat 3, 37 Ambler Road, N.4. Prof. H. O. Corfiato, R. C. White-Cooper, A. M. Foyle.

Weir: Walter Donald, A.R.I.C.S., (Special Final), 3 Stafford Place, Weston-super-Mare, Somerset. Eric Ross, Kenneth Nealon, G. E. Bunce.

Whateley: Brian, (Final), 270 Pershore Road, Edgbaston, Birmingham, 5. G. S. Kelly, E. Watson, H. W. Stokes.

Wheatley: John Robert Glamis, (Final), 289 Prince Avenue, Southend-on-Sea, Essex. O. Campbell-Jones, R. N. Wakelin, A. A. Stewart.

Wilkinson: Leslie James Arthur, (Special Final), 'Southgate', High Ongar, Essex. Applying for nomination by the Council under Bye-law 3(*d*).

Willetts: Gilbert George John, (Final), 45 Dunstall Road, Halesowen, Worcestershire. H. G. Wicks, A. Douglas Jones, F. W. B. Charles.

Wingfield: Alan Arthur, (Final), 'Sunnydale', Half Moon Lane, Worthing, Sussex. K. E. Black, R. F. Daviel, and applying for nomination by the Council under the Bye-law 3(*d*).

Wood: Arthur William, D.A.(Edin.), (Edinburgh Coll. of Art: Sch. of Arch.), 9 Royal Park Terrace, Edinburgh, 8. J. Holt, Donald Jack, Frank Wood.

Wood: Hubert Douglas, (Final), 6 High Fold, Micklethwaite, Bingley, Yorks. H. Bailey, Eric Brown, and applying for nomination by the Council under Bye-law 3(*d*).

Woolstone: Brian Simon Joseph, (Final), c/o 99 Bellott Street, Manchester 8. Cecil Stewart, L. C. Howitt, F. L. Halliday.

ELECTION: 7 APRIL 1959

An election of candidates for membership will take place on 7 April 1959. The names and addresses of the overseas candidates, with the names of their proposers, are herewith published for the information of members. Notice of any objection or any other communication respecting them must be sent to the Secretary, R.I.B.A., not later than Wednesday 1 April 1959.

The names following the applicant's address are those of his proposers.

AS ASSOCIATES (9)

The names of a school, or schools, after a candidate's name indicates the passing of a recognised course.

Birrer: William Anthony, B.Arch.(C.T.) (passed a qualifying Exam. approved by the I.S.A.A.), P.O. Box 449, 201 Bradlows Building, 96 Abercorn Street, Bulawayo, Southern Rhodesia. Prof. L. W. T. White, O. Pryce Lewis, J. R. Hobson.

Chakrapani: Raghunathan, (Final), c/o N. Raghunathan, Esq., 7 Jagadees War Street, T. Nagar, Madras 17, India. J. P. J. Bilimoria, J. Talpade, S. K. Joglekar.

Hoffe: Andre John, B.Arch.(Rand) (passed a qualifying Exam. approved by the I.S.A.A.), 460 Bennett House, Moffat Street, Salisbury, Southern Rhodesia. Applying for nomination by the Council under Bye-law 3(*d*).

Lehey: Norman George, B.Arch.(Melbourne) (passed a qualifying Exam. approved by the R.A.I.A.), c/o Public Works Department H.Q., Maxwell Road, Kuala Lumpur, Fedn. of Malaya. T. A. L. Concannon and applying for nomination by the Council under Bye-law 3(*d*).

Mackay: David John, (Northern Poly. (London): Dept. of Arch.), Calle Rosellon 345. 5º 3º Barcelona, Spain. T. E. Scott, C. G. Bath, D. P. Marshall.

Manathunga: Noel Sylvester Paul, Dip.Arch. (Melbourne) (passed a qualifying Exam. approved by the R.A.I.A.), Commonwealth Department of Works, 82 Lonsdale Street, Melbourne, Victoria, Australia. Harry Winbush, Prof. B. B. Lewis, L. M. Perrott.

Messling: Derek Ronald, Dipl.Arch.(Northern Polytechnic), (Northern Poly. (London): Dept. of Arch.), c/o P.O. Box 235, Gwelo, Southern Rhodesia. T. E. Scott, S. F. Burley, C. G. Bath.

Peck: Philip George Stephen, (Special Final), Public Works Department, Lusaka, Northern Rhodesia. P. D. Lawson, A. L. Spencer, Horace Williams.

Walsh: Kevin Robert, (Final), Public Works Department, Tancot House, Dar es Salaam, Tanganyika, East Africa. J. J. Robinson, W. J. Cantwell, Prof. J. V. Downes.

Members' Column

This column is reserved for notices of changes of address, partnerships vacant or wanted, practices for sale or wanted, office accommodation, and personal notices other than of posts wanted as salaried assistants for which the Institute's Employment Register is maintained.

CHANGES OF ADDRESS

Mr. P. H. Arscott [*A*] has changed his address to Warren's Stream, Coldharbour Lane, North Chailey, Sussex.

Mr. Philip V. Brown [*A*] has changed his address to c/o Messrs. Barnes, Hubbard and Arundel, P.O. Box No. 2, Legon, near Achimota, Ghana, W. Africa.

Mr. D. B. Hately [*A*] has changed his address to 'Wychwood', Redbrook Way, Adlington, Cheshire.

Mr. G. T. Heard, M.C. [*A*], has changed his address and requests that his name be removed from all mailing lists.

Mr. C. H. Thorp [*A*] has changed his address to 22 Willow Road, Finchfield, Wolverhampton, Staffs.

Mr. L. Woodhams [*A*] has changed his address to 'Merton', 20 Haverhill Road, Stapleford, Cambs. (Shelford 2005).

PRACTICES AND PARTNERSHIPS WANTED AND AVAILABLE

Associate (31), with experience in private practice, wishes to purchase a partnership with an established firm of architects or architects and surveyors in London. Some work and capital available. Box 1, c/o Secretary, R.I.B.A.

Associate (39), moving practice from Dublin to London area, seeks partnership with busy firm of London architects. Twelve years' experience in private practice and in public works. Some capital available. Box 2, c/o Secretary, R.I.B.A.

Highly skilled, enthusiastic and commercially practised Associate (36), with 17 years' first-class all-round professional and contractual experience, urgently seeking senior position with consultant member or commercially practising members, leading to a partnership. Some capital available. Box 3, c/o Secretary, R.I.B.A.

Midland Associate, with contemporary busy medium-sized general practice, requires senior assistant (Associate), preferably school trained, with a view to partnership. Box 4, c/o Secretary, R.I.B.A.

Experienced Associate with small London practice would like to contact an architect in the Federation of Rhodesia and Nyasaland requiring a senior assistant with a view to partnership. Particularly interested in a small practice. Capital available. Box 6, c/o Secretary, R.I.B.A.

Architects, with substantial work overseas and in England, desire close amalgamation with another well-connected London firm. Box 7, c/o Secretary, R.I.B.A.

Associate, with nine years' progressive London and provincial office experience, wishes to acquire established practice, or form partnership or association with a member in the West Country offering real scope for expansion. Local contacts, capital available. Box 9, c/o Secretary, R.I.B.A.

ACCOMMODATION

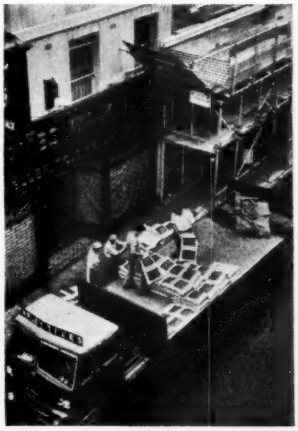
Fellow, retiring, desires to let his furnished office situated in central London, West End. Box 5, c/o Secretary, R.I.B.A.

The Royal Institute of British Architects, as a body, is not responsible for statements made or opinions expressed in the JOURNAL.

Business as usual

. . . thanks to the

ingenuity of GILBERT-ASH



Extension behind and above these established premises meant the strengthening of existing foundations and structural steelwork. The use of MarleyMix coarse concrete for infilling and encasing has enabled business to continue normally while these extensions are going on, although the sole means of access to the site is through the shop itself.

To quote the Site Agent, "This job could never have been carried out so economically without the use of MarleyMix. Unloading, handling and storage could not have been overcome so easily by any other method of supply."

When materials storage space is limited, specify MarleyMix. The mixes, in sacks of approximately 1 cwt. capacity, need nothing but the addition of water. Absolute control of ingredients ensures consistency and overcomes all the variations which occur with site mixing.

MARLEY MIXES INCLUDE:

FINE CONCRETE
for all fine finish work.

COARSE CONCRETE
for infilling, path bottoming and similar work.

CEMENT MORTAR
for rendering over brickwork in contact with the earth. Cement screeding. Drainage work and general purposes.

BRICKLAYING MORTAR
with water-repellent qualities and excellent bond to bricks. Consistent colour of pointing is assured.

RENDERING/PLASTER UNDERCOAT
a cement-lime-sand mix, easy to apply, with good bond to wall and water-repellent qualities.

MARLEYMIX **ready-to-use dry mixes in paper sacks**

Deliveries can be pre-arranged to any required schedule but at present are limited to a 30 mile radius of Aveley (this includes the Greater London area).
The Marley Tile Company Ltd.,
Stifford Road, South Ockendon, Nr. Romford, Essex. *South Ockendon 2201*

A **MARLEY** *product*

monthly review by WILLIAMS & WILLIAMS

'WALLSPAN' FOR NEW B.O.A.C. WING HANGAR

1 Both ends of this vast new maintenance hangar at London Airport are glazed by Williams & Williams—the 2-story central workshop block being emphasized by a panel of 'Wallspan' set in a projecting concrete frame. Aluminium windows are set in the 'Wallspan' grid and three types of opening lights—top-hung, projected, and vertical-pivoted are incorporated. The spandrel panels are Vitroslab.

The basic design is an interesting solution to a recurrent problem in the design of aeroplane hangars whose height, after allowing for high-level services, is dictated solely by the tail-fin height of the various aircraft to be accommodated. Airliner design in recent years has tended towards increasing tail heights, and the hangar designer has been faced with a difficult economic problem since every foot of increased height is reflected in increased capital cost and higher heating, lighting and maintenance costs. Whatever height is decided upon may still prove inadequate for some new aircraft a few years hence. But on the other hand a reversal of the present trend—airliners designed on the Delta configuration for example—would result in hangar height becoming so much wasted space.

The new B.O.A.C. Wing Hangar, as the name implies, is designed to accommodate only the wings and fuselage of the aircraft—the sliding doors are shaped to close around the rear fuselage leaving the tail unit outside. Engines, undercarriage, flight deck, passenger cabin, wing fuel tanks and wing control surfaces—the usual objects of routine maintenance—are all under cover.

The reinforced concrete structure consists of a pair of hangar pens, each with a completely unobstructed 565 ft. wide opening and depth of 110 ft., arranged back-to-back but separated by a central two-floor workshop block. The hangar pen roofs are suspended by ties from this central block.

'ALOMEGA' WINDOWS FOR CORNISH COMFORT

2 This study flat is high up, midway between the coasts of Cornwall. The client wanted big windows for the sake of the panoramic views across to St. Ives but had misgivings about draughts. The architects' solution to his problem was to install 'Alomega' double hung sashes—heads, sills, jambs, and meeting rails all designed with integral weather-stripping to keep draughts out, even in a blustery south-wester coming across thousands of miles of Atlantic! Other reasons for specifying 'Alomega'—**no maintenance:** no cords or counterweights or balances to go wrong; no painting because the windows are all-aluminium: **easily adapted to a 3 ft. building module:** the 2 ft. 8½ in. width was used—others from 1 ft. 2½ in. to 3 ft. 5½ in.: **ideal combination with picture window**—see illustration opposite.

Last (but not least in these Subtopian days), the sash window is considered in a special way to be *the* window for the West Country and 'Alomega' happily combines the technical resources of today with the graceful design of the eighteenth century.

A further advantage which was not applicable in this particular instance, but of considerable value in congested urban sites, is the fact that with 'Alomega' the building can come right up to the building line.

NEW STANDARD WINDOWS CUT SITE COSTS—NEED ONLY ONE COAT OF PAINT

3 Williams & Williams standard domestic windows to BS 990 in both 1 ft. 8 in. and 2 ft. ('Z' range) modules are now available galvanized, primed and *painted.* The windows are processed in an entirely automatic plant which is believed to be the largest of its kind in the world.

The assembled frames are loaded on to a conveyor—chemically cleaned, etched and electro-galvanized. Still on the same mechanical conveyor, the windows are dipped in a primer bath and stoved for 25 minutes at 350°F. They then receive a sandy-beige coat and are finally stoved a further 25 minutes—again at 350° F. The paint technology of the operation has been worked out in collaboration with ICI and the second coat is their beige No. B215/166/2.

This process offers four major advantages:

1. Since the human element is eliminated, a much more even distribution of paint is assured.
2. *All* surfaces of the frames are painted, including those which will be in contact with the masonry and which in the ordinary course of events *could* not be painted.
3. The fact that both primer *and second coat* are stoved lends greater durability to the paint giving together with the galvanizing coat an efficient triple protection to the steel surface.
4. The second stoved coat can be regarded as an undercoat. Because of its light shade **only one finishing coat need be applied on site.**

WILLIAMS & WILLIAMS
RELIANCE WORKS · CHESTER

Member of the Metal Window Association

1 **B.O.A.C. WING HANGAR, LONDON AIRPORT**
Engineers for reinforced concrete structure: Sir Owen Williams & Partners.
New Works Manager, B.O.A.C.: L. B. Haley, M.ENG., A.M.I.C.E., A.M.I.H.V.E.
General Contractors: W. & C. French Limited.

A *General view—note the tails of Britannia aircraft protruding from the hangar pen on the extreme right of the photograph.*

B *Detail of the 'Wallspan' on the central workshop block—3 types of opening lights can be seen in the aluminium windows. Note the permanent railway along the cornice for the cleaners' cradle.*

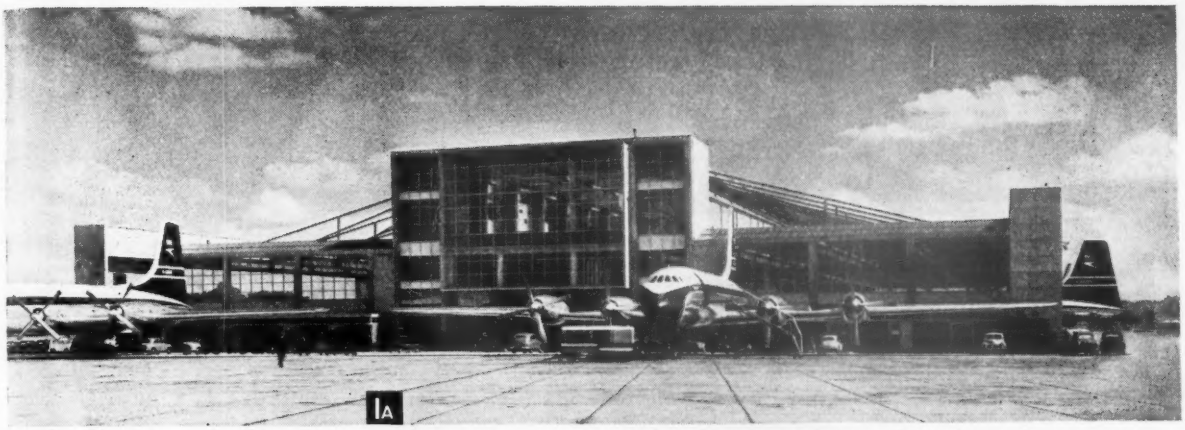
2 **'LITTLE TREFEWHA', PRAZE, CORNWALL**
Architects: Taylor & Crowther, Chartered Architects.

A *Exterior.*

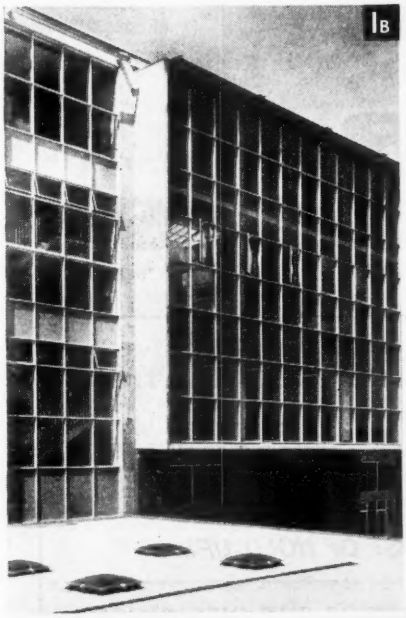
B *Interior of the study showing how the 'Alomega' sash forms part of the glazed corner.*

C *Draughtproofing plastic extrusions at head, meeting rail and sill of 'Alomega' double-hung window.*

3 *Part of the automatic conveyor system on which Williams & Williams new standard paint-finished metal windows are processed.*

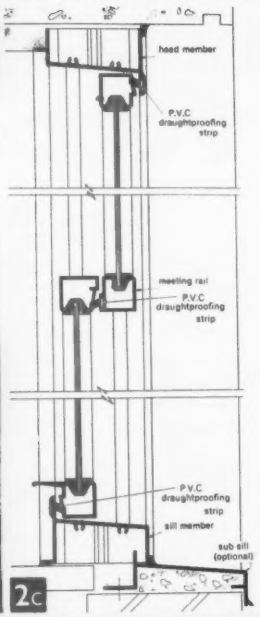


1A



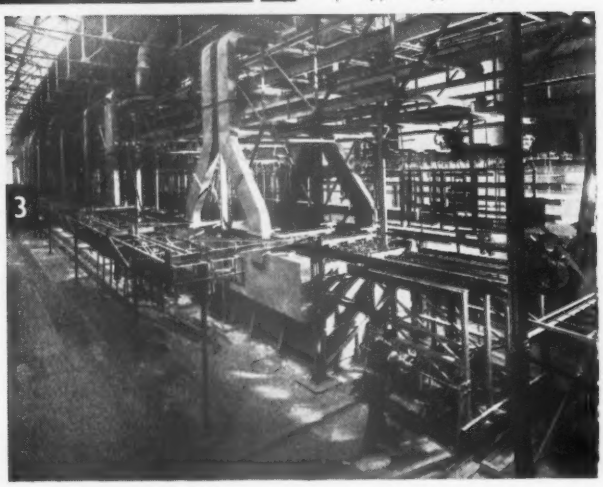
1B

2A



2C

2B



3

Key Plan

TO CUT YOUR BUILDING COSTS

Outlay on pipes is only a fraction of the cost of a drainage installation. In winter one out of every five days is lost when putting in conventional pipes. With Key pipes, however, the job still goes ahead cutting out unproductive labour, keeping down overheads and therefore cutting costs.

Now you can keep to schedule Delays are negligible with Key pipes, because they can be laid and tested in almost any weather, even despite bad ground. Pre-planning with Key can be done accurately, so that operations are smoothly sequenced and closely dovetailed. Snags are avoided and schedules kept or bettered.

Urgency on large projects When your normal drainlaying team is too small for a big rush job, work can still go ahead successfully, by making up with semi-skilled men.

COST OF A DRAINAGE INSTALLATION

= *COST OF LABOUR*

\+ *COST OF OVERHEADS*

\+ *COST OF HOLD-UPS*

\+ *COST OF SITE DISRUPTIONS*

\+ *COST OF MATERIALS*

Use KEY and cut this total cost

British Standard Kite Mark

Key pipes comply with BS2760 1956. They are the first pitch fibre drainpipes to carry the British Standard 'Kite' Mark. This is a guarantee of quality and means that the Inspectors of the British Standards Institution have access to our pipe factory at any time.

THE JOB GOES AHEAD -against all odds

Rain? Driven taper joints give Key an immediate advantage over cement-jointed rigid pipes, which cannot normally be laid in waterlogged trenches. Runs can be prefabricated at ground level, lowered into prepared trenches and tested immediately.

Frost and Snow? Here again the taper joint means that work can still go ahead with Key. In fact frosty days are usually ideal for laying these modern drainpipes.

Bad Ground? Key pipes do not have to be laid in concrete, and haunched, on bad ground. Being resilient, they are better without concrete. The savings in skilled labour, time and cost are obviously considerable.

Site Congestion? Open trenches and pumping equipment normally cause hold-ups on site in wet weather. Immediate laying, testing and backfilling with Key pipes overcome this problem and keep traffic flowing.

Hot Sun and Drying Winds? Even good weather can be bad weather when pipes have to be mortar-jointed. This problem never arises with Key pipes.

More advantages of KEY PITCH FIBRE PIPES

No corrosion Remarkably resistant to acids and alkalis.

No root growth The close fitting tapered joints are machined to close limits.

No cracking through settlement Natural resilience means that pipes will not crack through normal earth movement.

Faster laying—fewer breakages 500 ft. an hour is a modest average with semi-skilled labour. A trench can be excavated, the drain laid, tested and backfilled in a day. Long lengths, toughness and resilience mean fewer breakages.

Widely approved Most public authorities and relevant professional bodies have given their approval.

Lower handling costs Your unloading and handling costs will be cut by 75% because Key Pitch Fibre pipe is only one quarter the weight of salt glaze ware. It is available in the same diameters, in convenient 8 ft. lengths.

Ask for a demonstration

A practical demonstration of the advantages of Key pipes can be arranged at any time through your merchant, who will also supply any quantity you require within a matter of hours.

SPEED THE JOB—CUT THE COST WITH

KEY

PITCH FIBRE PIPES

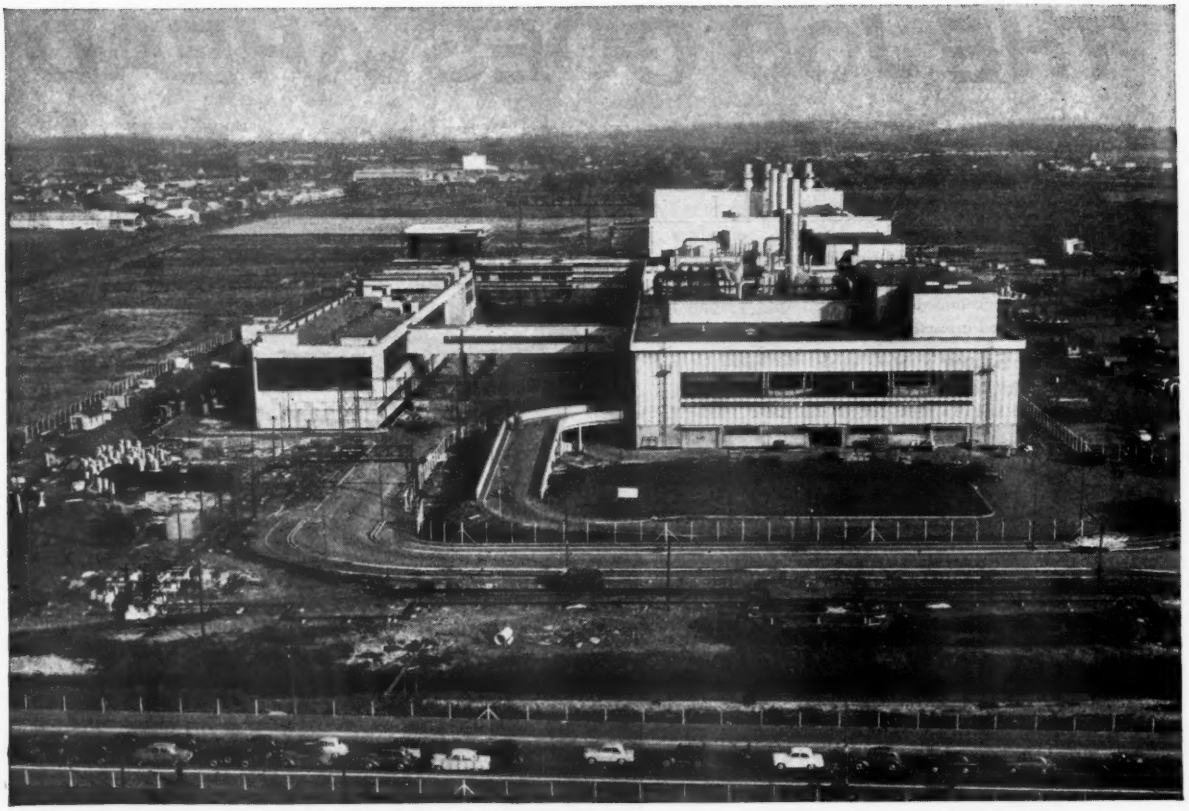
THE WORLD'S FINEST AND MOST MODERN DRAINAGE SYSTEM

A PRODUCT OF **THE KEY ENGINEERING COMPANY LIMITED**

LARKFIELD, NR. MAIDSTONE, KENT. TELEPHONE: MAIDSTONE 7461 AND 7233

Reed

TGA KD17

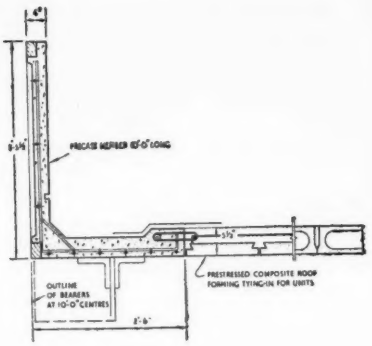


The ***BISON*** contribution to the new

FORD foundry at Dagenham *included:*

32,000 yds. sup. of Bison hollow flooring and roofing
9,250 yds. sup. of Plank composite flooring and roofing
and
5,540 lin. ft. of precast Parapet Wall Units* in 10′ 0″ lengths.

Bison products have also been used in buildings
for other well-known motor car manufacturers including
The Austin Motor Co. Ltd., The Daimler Co. Ltd.,
Leyland Motors Ltd., The Rover Co. Ltd.,
Vauxhall Motors Ltd.



*

Typical detail of the Bison precast parapet wall unit.

BISON floors, beams and concrete frame structures

SPEED & STRENGTH

CONCRETE LIMITED are the largest structural precast concrete manufacturers in the world

CONCRETE LIMITED Green Lane, Hounslow, Middlesex *Hounslow 2323* and Dovehouse Fields, Lichfield, Staffs. *Lichfield 3555*
London Sales Office: 16 Northumberland Avenue, W.C.2 *Whitehall 5504*
CONCRETE (NORTHERN) LIMITED Stourton, Leeds 10 *Leeds 75421* Manchester Office: 40 King Street West, Manchester 3 *Blackfriars 5676*
CONCRETE (SCOTLAND) LIMITED Etna Road Falkirk *Falkirk 2366* Sales Office: Elmbank Street, Glasgow C.2. *City 3292*

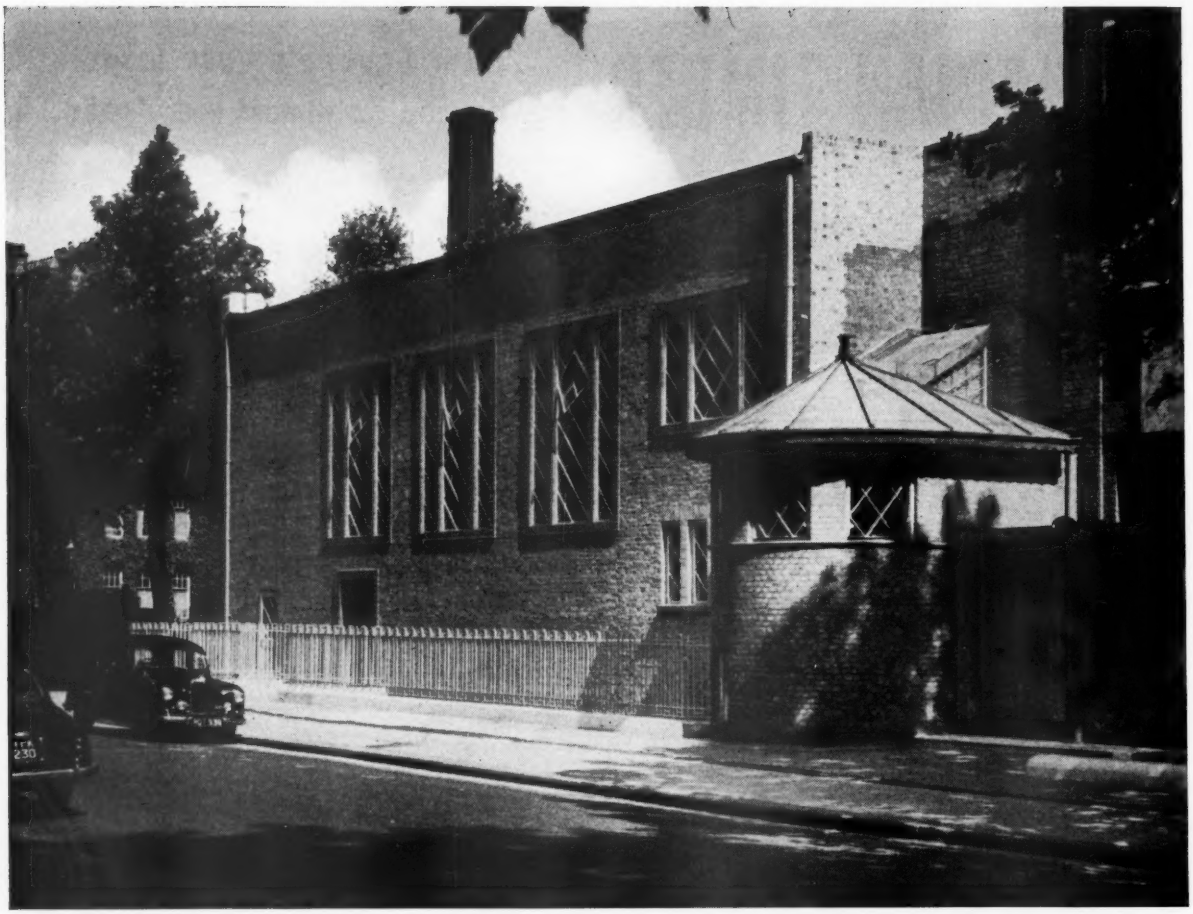


PHOTO: E. E. CRISFORD

ASSEMBLY HALL FOR WESTMINSTER TECHNICAL COLLEGE TO BE SURMOUNTED LATER BY ADDITIONAL CLASSROOMS

ARCHITECTS	CONSULTING ENGINEERS	QUANTITY SURVEYORS
H. S. GOODHART-RENDEL, P.P.R.I.B.A. GOODHART-RENDEL, BROADBENT & CURTIS	*THOMAS BEDFORD & PARTNERS*	*SELBY & SANDERS*

"I assume that all the lavatories and closets will be made of Vitreous China. It is really the only safe sanitary material to be used, the only one that remains *permanently* hygienic under all conditions."

Vitreous China is a solid, impermeable substance, which does not depend upon the glaze to render it non-porous. The glaze is added simply to obtain an attractive finish and, in any case, is guaranteed against crazing.

Apart from being infinitely more hygienic, Vitreous China can be far less expensive in the long run because it is strong and will withstand hard usage—thus you are far less likely to worry about having to replace a cracked, unsightly basin. As a matter of fact, Vitreous China is no higher in initial cost than some types of inferior ware.

In the interests of health, specify "Standard" Vitreous China for all sanitary installations.

"Standard" Vitreous China

The strongest—permanently hygienic Sanitary ware

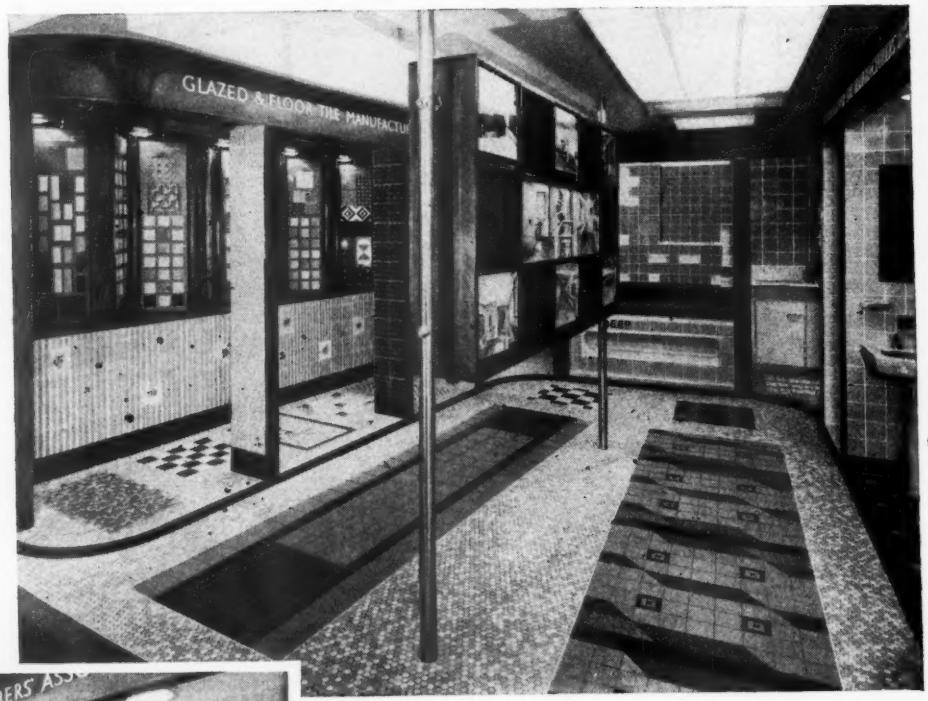
IDEAL BOILERS & RADIATORS LTD., IDEAL WORKS, HULL

255

British Ceramic Tiles

STILL LEAD THE WORLD FOR

QUALITY, VERSATILITY, PERMANENCE



Every Architect and Builder
should visit this comprehensive
Exhibition of Ceramic Tiles,
at the Building Centre,
Store Street, London, W.1.
In domestic or industrial design . . .
. . . there is nothing to equal
the Ceramic Tile.

Ceramic TILES

Glazed & Floor Tile Manufacturers' Association · Federation House · Stoke-on-Trent

SASCO DOORS have been installed in the Strathy Point Lighthouse (North Coast of Sutherland) New Station for the Northern Lighthouse Board, Edinburgh. Contractors :- Messrs. A. A. Stuart (Glasgow) Ltd. 2275 London Road, Glasgow, E.2

SOUTHERNS
LIMITED

Head Office-
BOLD SAW MILLS • WIDNES • LANCS
TELEPHONE: WIDNES 2641 · 5 LINES

Apply for the new "Sasco" Door Leaflet or Wall Chart, now available.

YOU CAN RELY ON SASCO DOORS

Branches-

MANCHESTER 1
32 Store Street
'Phone: Ardwick 1741/3

BRISTOL 3
Hartcliffe Way, Bristol 3
'Phone: Bristol 61437 (3 lines)

DUDLEY
Woodside Saw Mills, Pedmore Road
'Phone: Brierley Hill 78287/9

BIRMINGHAM 8
Bromford Lane, Birmingham 8
'Phone: East 3711/2

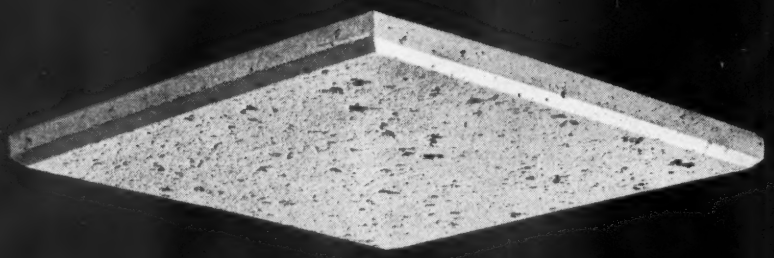
GLASGOW S.W.1
80/92 Whitefield Road
'Phone: Ibrox 1154/5

KETTERING
The Crescent
Queensberry Road
'Phone:
Kettering 3075 and 3792

HANLEY
Etruria Road, Hanley, S-o-T
'Phone: S-o-T 29605/6

LONDON S.E.10
23 Stockwell St., Greenwich
'Phone: Greenwich 3461/2

GYPTONE



acoustic tile

. . . so light it can be stuck

HIGH SOUND ABSORPTION	Sound Absorption Coefficients at frequencies (c.p.s.)					
	125	250	500	1000	2000	4000
GYPTONE Acoustic Tiles fixed to 2" x 1" battens at 12" centres	0.15	0.35	0.75	0.80	0.85	0.85'
GYPTONE Acoustic Tiles stuck to concrete	0.10	0.20	0.50	0.85	0.85	0.85
FIRE PROTECTION	TOTALLY INCOMBUSTIBLE: Surface Spread of Flame CLASS 1					
THERMAL INSULATION	Thermal conductivity k - 0.53					
SIZE	12" square ¾" thick with square or bevelled edges: weight about 1½ lbs each tile					

GYPROC PRODUCTS LIMITED

Head Office: Singlewell Road, Gravesend, Kent. *Gravesend 4251 4.*
Glasgow Office: Gyproc Wharf, Shieldhall, Glasgow, S.W.1. *Govan 2141 3.*
Midland Sales Office: 11 Musters Road, West Bridgford, Nottingham. *Nottingham 82101.*
London Office: Bath House, 82 Piccadilly, London, W.1. *Grosvenor 4617 9.*

NOW with the same brilliant performance as the gas-fired Falcon

The FALCON 10E

heavy duty electric range

Like the popular Falcon 10G gas range, the 10E is designed to cater for any number of people. It can be installed in runs, island suites, or singly, as required.

It has the same simplicity of design, too, with the same results —ease of operation (which encourages good cooking), easy cleaning and an absence of dirt traps, and easy access to all internal parts.

Flexibility in use, a high degree of safety, sturdy construction, and good looks too, all help to make the Falcon 10E one of Falkirk's finest contributions to industrial catering.

For a fully illustrated leaflet, write to

THE FALKIRK
IRON COMPANY LIMITED
18 Dering Street, London, W1

PROPRIETORS: ALLIED IRONFOUNDERS LTD

M. & C. 6297/4

The face of London changes...

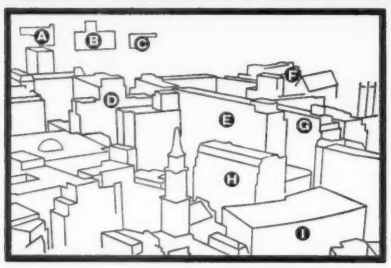
but the name of *FOSALSIL* recurs...

For 25 years now, since we first introduced Fosalsil flue bricks, it has become practically second nature for British architects to specify them for lining boiler flues.

But although accustomed to the highest confidence being placed in our product, it was none the less gratifying to note that in every one of the buildings numbered above, Fosalsil flue bricks were employed throughout.

FOSALSIL

Made only by MOLER PRODUCTS LIMITED
Hythe Works, Colchester. *Telephone: 3191 (3 lines).*

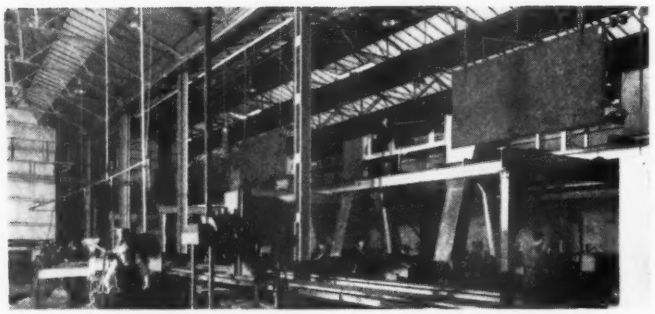


	BUILDING	ARCHITECT	CONTRACTOR
A	57/67 Chiswell St.	Sanders & Montague, 24 Harley Street, W.1.	G. E. Wallis & Sons Ltd.
B	B.P. House	Messrs. Joseph, 10 Lowndes Sq., S.W.1.	Myton Limited.
C	Chile House	Joseph Mendelson & Partners, 71 Wimpole St., W.1.	Gee, Walker & Slater.
D	Garrard House	Major A. S. Ash, 66 Gt. Cumberland Place, W.1.	Sir Robert McAlpine.
E	2/12 Gresham St.	Easton & Robertson, 53 Bedford Sq., W.C.1.	John Laing & Son Ltd.
F	Guildhall Office Block	Sir Giles Gilbert Scott, 9 Grays Inn Sq., W.C.1.	Trollope & Colls Ltd.
G	Clements House	Trehearne & Norman Preston & Partners, 83 Kingsway, W.C.2.	Wates Ltd.
H	Saddlers Hall	L. Sylvester Sullivan, 14 Grays Inn Sq., W.C.1.	Holland & Hannan and Cubitts.
I	Cheapside House	Theo. H. Birks, 38 Portland Place, W.1.	Bernard Sunley & Sons.

people are beginning to expect warmth and comfort — peace and quiet with

FIBREGLASS TRADE MARK

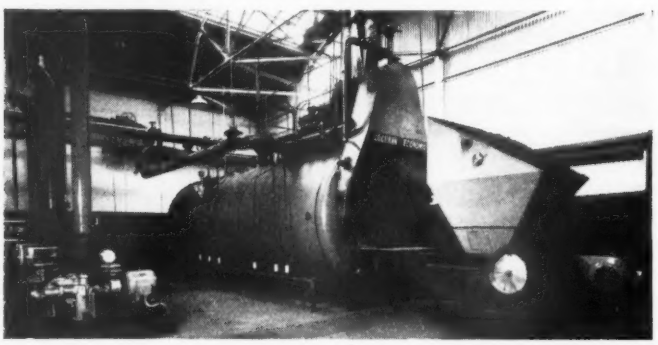
FIBREGLASS LTD., RAVENHEAD, ST. HELENS, LANCS · ST. HELENS 4224



MORRIS MOTORS LTD., WELLINGBOROUGH

RADIANT PANEL HEATING

* High temperature hot water is circulated under pressure to the radiant panels, which are suspended immediately over working areas. The Economic boiler illustrated below is fired by our Underfeed Mechanical Stoker, which burns coal smokelessly and automatically and is one of the most economical producers of heat.



* *Extract from Publication No. 348, copies of which will gladly be sent gratis, on application to*

HOPE'S HEATING & ENGINEERING LTD

Smethwick, Birmingham & 16 Berners Street, London, W.1
Branch Offices at Leeds, Cardiff & Hull

CONDER

standard Clearspan

Bright Bar Warehouse supplied to Arthur Lee & Son Ltd., Sheffield. Length 225 ft. Span 80 ft. 5 ton crane.

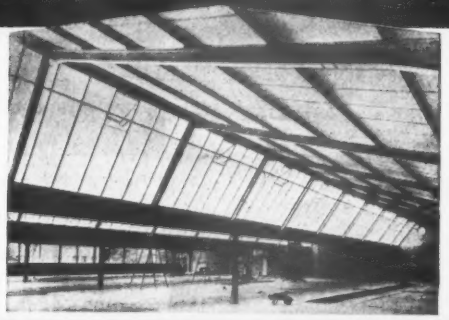
Clearspan buildings are used by many leading industrial concerns including U.K. Atomic Energy Authority, British European Airways, de Havilland Engine Co. Ltd., Esso Petroleum Co. Ltd., Imperial Tobacco Co. Ltd., J. Lyons & Co. Ltd., Ministry of Works, National Coal Board, Shell Mex & B.P. Ltd., Southern Electricity Board, George Wimpey & Co. Ltd.

CLEARSPAN *the most comprehensive and attractive range of standard buildings ever produced*

SPANS UP TO 150 ft. **ROOF SLOPES 12°–17°–22°** **CRANES UP TO 10 TONS**

or made to measure

Conder pioneered the NEW LOOK in steel construction—elegant, efficient and economical. Now Conder is even further ahead with the most advanced designs, including portal frames up to 150′ 0″ clear span. Conder complete erection service includes cladding and glazing.

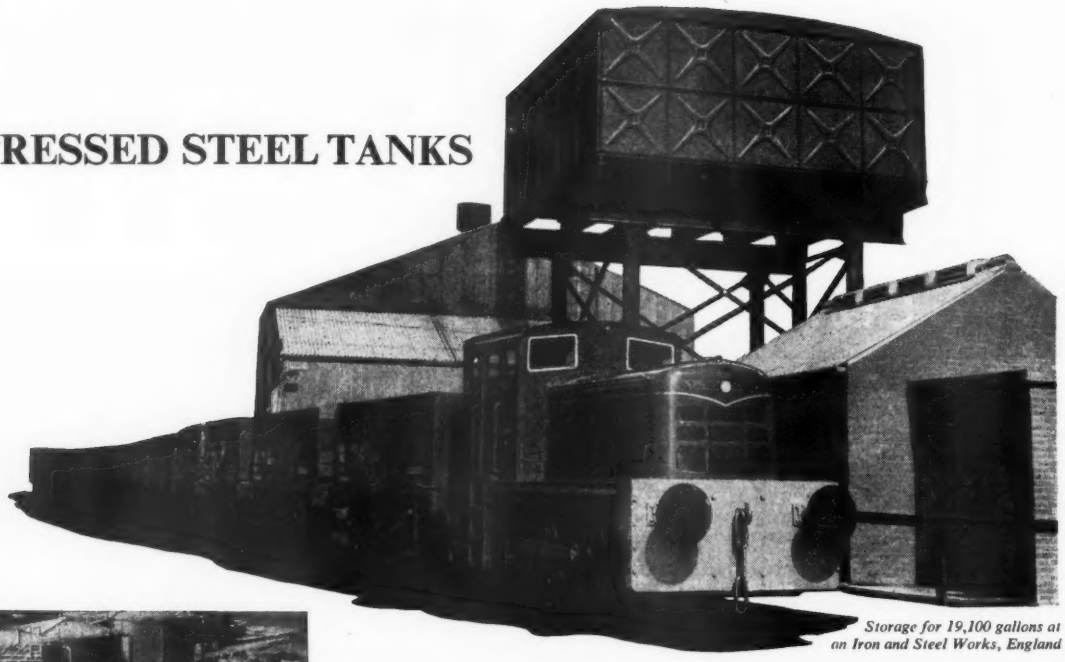


Cloth weaving shop. Architects: Vallis & Bird, Frome, Somerset.

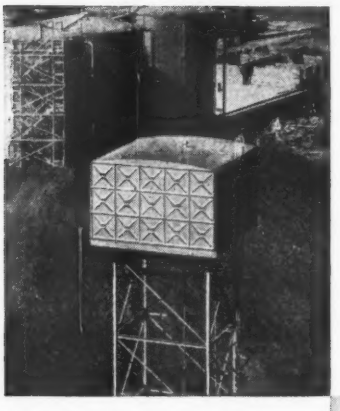
CONDER ENGINEERING COMPANY LIMITED · WINNALL · WINCHESTER · TEL: 5095
CONDER ENGINEERING CO (MIDLANDS) LTD · PEEL HOUSE · BURTON-ON-TRENT · TEL: 5411

P.2456

PRESSED STEEL TANKS

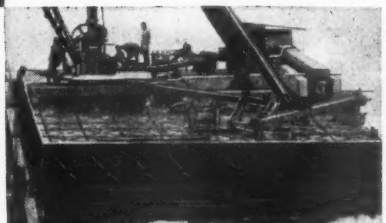


Storage for 19,100 gallons at an Iron and Steel Works, England



Storage for 34,000 gallons at an Oil Refinery, Aden

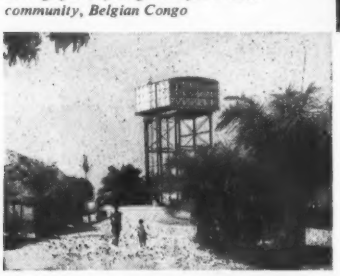
The unit method of construction enables Braithwaite Pressed Steel Tanks to be supplied in an unlimited range of capacities and to be conveyed to and erected in positions unsuitable for other forms of construction. In addition to providing adequate liquid reserves for many industrial needs, Braithwaite Tanks are playing an increasing part in bringing essential services and improving the standards of living to established communities and are a means of providing many of the basic amenities where backward areas are being opened up and developed.



A pontoon for civil engineering work made from units built with pressed steel tank plates

Storage for 1,400 gallons at a tea garden, Ceylon

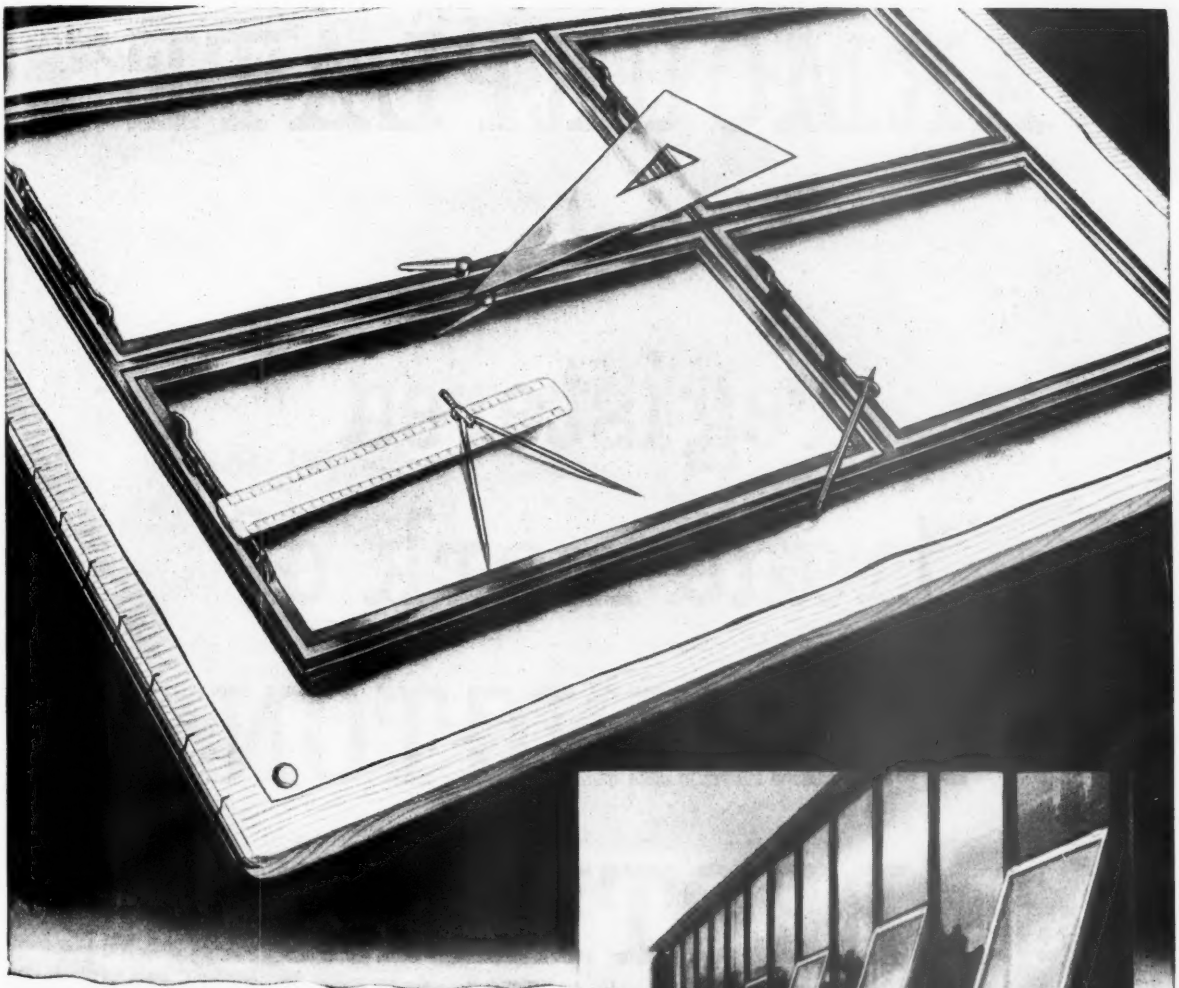
Storage for 65,100 gallons for a rural community, Belgian Congo

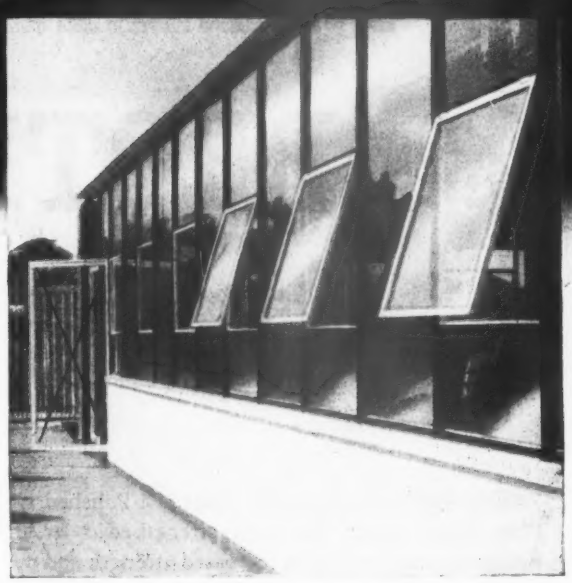


BRAITHWAITE & CO. ENGINEERS LIMITED

BRIDGE AND CONSTRUCTIONAL ENGINEERS

LONDON OFFICE: DORLAND HOUSE · REGENT STREET · LONDON SW1 · TELEPHONE WHITEHALL 3993





PURPOSE MADE
METAL WINDOWS

The Architect's drawing board is the base from which we work and Haywards windows are the practical interpretation of the spirit and purpose of his ideas.

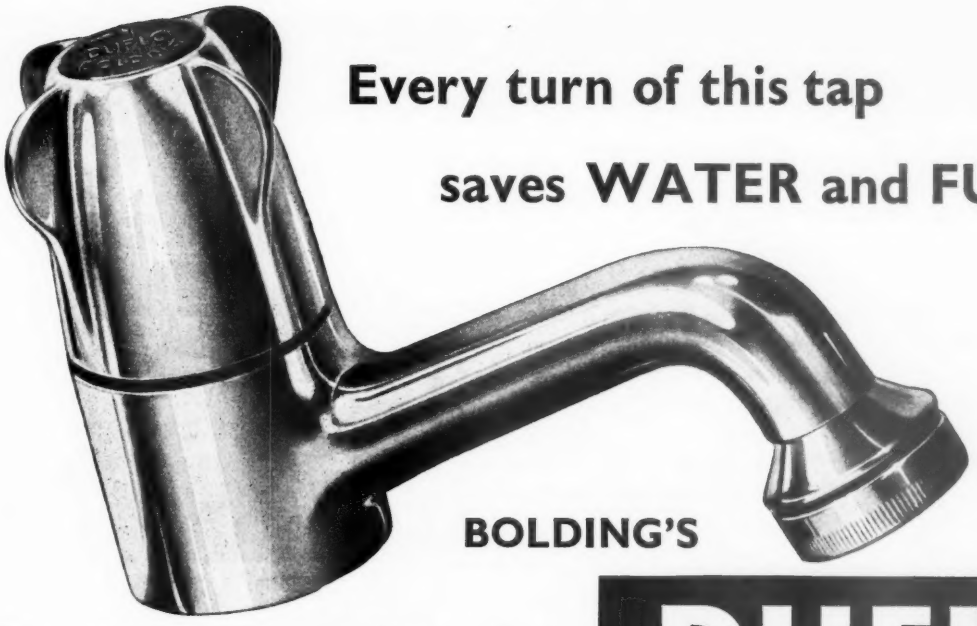
Yet, although they are purpose-made to suit the individual requirements of a contract, they bear certain Haywards characteristics. There is strength and rigidity in each unit and opening portions will give efficient and easy operation in the face of all weathers for many years.

Metal windows supplied for Messrs. Leffman's factory in Somerset to the instructions of Dennis Lennon, Esq., M.C., A.R.I.B.A.

HAYWARDS *PURPOSE MADE METAL WINDOWS*

HAYWARDS LIMITED · UNION STREET · LONDON · SE1
TELEPHONE: WATERLOO 6035 (PRIVATE BRANCH EXCHANGE)

3349



Every turn of this tap saves WATER and FUEL!

BOLDING'S DUFLO

Economy in water and fuel consumption is a major consideration when specifying washroom installations for industry. That's why the Architect of today turns to today's most modern spray tap system—Bolding's Duflo, accepted by the B.W.A and the M.W.B.

More Attractive

Specially constructed for heavy duty, chromium plated to B.S.S., and with body and outlet constructed in one piece, the 'Duflo' is ultra-modern in design.

More Economical

The 'Duflo' incorporates a unique restrictor that adjusts water volume and reduces consumption to barely one quarter that of a ½" standard pillar tap!

More Convenient

DUFLO automatically supplies water at cold, tepid or hot temperatures at a twist of the tap head—out-dating conventional systems.

Both practical and handsome, this special lavatory basin features an outlet with fixed grating. Incorporating the 'Duflo', it represents a major advance in washroom fittings and provides maximum savings for industry in water and fuel consumption.

Write for illustrated leaflet

Manufactured by **JOHN BOLDING & SONS LIMITED**

Grosvenor Works, Davies Street, London, W.1. Telephone: MAYfair 6617

AP62

AS GOOD AS A SOLID BRICK WALL!

A well known City Chairman once complained to us that intense traffic noise below his windows and excessive audibility between adjacent offices and his own was affecting his efficiency, his privacy and his peace of mind.

We therefore designed and built for him, under a WRITTEN GUARANTEE to solve his problems, sound-proof doors and windows like those illustrated here.

Numerous tests on site and careful laboratory analysis proved that we must reduce the existing sound pressure level of 80 decibels to 35 decibels to achieve the comfort he desired.

So, to fulfil our undertaking, it was necessary to construct each door and window, not only to acceptable dimensions and a high standard of design, but to provide a MINIMUM sound transmission loss of 45 decibels—no less, in fact, than that of a SOLID 4½″ BRICK WALL.

Which we very successfully did!

Photo by Courtesy of The Metal Box Co. Ltd.

"Sound-proof communicating door, designed to match existing decor."

These are just two examples of the work of Sound Control Limited, who can analyse, diagnose and cure most problems in sound. No matter what your noise problem may be, we invite you to consult us.

SOUND CONTROL LIMITED

A MEMBER OF THE THERMOTANK GROUP OF COMPANIES

CONTRACTORS IN ACOUSTICS

Photo by Courtesy of The Metal Box Co. Ltd.

Colneside Works, West Drayton, Middlesex
Telephone : West Drayton 3685–9 (5 *lines*)

Scottish Office: 10 Bothwell Street, Glasgow
Telephone : Central 6571/2

"Typical sound-proof window units designed and built to provide the sound transmission loss required."

'Ah, good morning, my man!' said Baron Rabbit. ' I want to buy a pipe.'

' Yes, your excellency,' said the tobacconist respectfully. ' We have some fine old briars, or perhaps a meerschaum, or a clay pipe – but O no, your worship wouldn't want anything so insignificant as that – '

' Insignificant ? ' cried the Baron. ' Clay pipes are glorious ! Salt glazed clay is well-nigh impervious ! It's acid-resistant ! Immune to moulds and fungus ! Can't be scratched by sand or grit ! Copes with all kinds of effluents for centuries on end ! '

' Yessir, yessir ! ' said the tobacconist. ' Will you take your clay pipe or shall I send it ? '

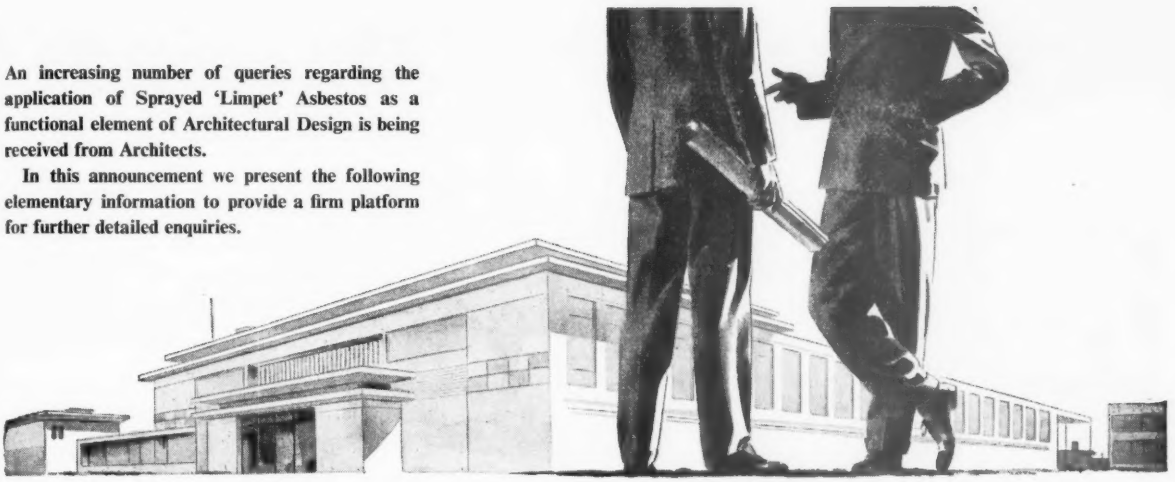
' Keep it for now,' said the Baron. ' I'll send my butler down to collect it ! '

Salt Glazed Clay Pipes – for drainage, for ever

NATIONAL SALT GLAZED PIPE MANUFACTURERS' ASSOCIATION

An increasing number of queries regarding the application of Sprayed 'Limpet' Asbestos as a functional element of Architectural Design is being received from Architects.

In this announcement we present the following elementary information to provide a firm platform for further detailed enquiries.



an architect asks questions about Sprayed 'Limpet' Asbestos by NEWALLS

REGD.

"What do you consider is the major advantage of Sprayed 'Limpet' Asbestos?"

Probably the most important element is that the 'Limpet' process gives intimate surface contact, sealing all joints, covering rivets, irregularities and protrusions in a continuous coat that entirely eliminates air spaces—a significant factor in itself.

"I understand that Sprayed 'Limpet' Asbestos has two insulating properties?"

Correct. In addition to providing a high degree of thermal insulation, it is an excellent material for absorbing sound. Indeed, many firms have specified the process for correcting acoustic distortions alone.

"Being largely Asbestos, I suppose the process gives a measure of fire protection?"

Most certainly! Again, it is often used solely because of its fireproofing properties. In fact, this method was the first to be approved for Class A fireproofing of ships under the 1948 Convention.

"Being porous, isn't the treatment liable to premature rotting where condensation exists?"

On the contrary. Asbestos is chemically inert. It is rotproof, verminproof and undamaged by water. Condensation is diffused preventing dripping and allowing for speedy re-evaporation to the atmosphere from the warm surface of the coating.

"It seems too versatile for words. It's a Thermal and Acoustic Insulant, rotproof and verminproof, fire-resistant, prevents condensation, resists vibration... anything else?"

Well. It has been used extensively purely as an anti-corrosion measure on metals subject to severe corrosive conditions, but we'd have to know the particular application you had in mind to give our full recommendations.

"Naturally. And if we did want Thermal and Acoustic Insulation—and Fire protection in one coating—I suppose it would cost the earth?"

Frankly—no. You see, the erection of timber grounds is not necessary. In application there is no cutting to waste, and the density and thickness is controllable to a very fine degree by highly efficient operators. It compares favourably with conventional insulation methods and materials.

Sprayed 'Limpet' Asbestos is a particularly suitable multi-purpose insulant in schools, public buildings and the like. Our considerable experience in this field will be gladly placed at your disposal.

Newalls

NEWALLS INSULATION CO. LTD.
HEAD OFFICE: WASHINGTON, CO. DURHAM
A member of the TURNER & NEWALL ORGANISATION
Offices and Depots at LONDON, GLASGOW, MANCHESTER, NEWCASTLE UPON TYNE, BIRMINGHAM, BELFAST, BRISTOL & CARDIFF

Now working surfaces can glow with colour

New Decorplast offers 47 exciting colours and designs you've never seen before!

Now Decorplast makes working-surfaces and walls really *glow* with colour—sets a new standard in top-class melamine-faced laminated plastics. It's as tough as it's beautiful. Doesn't easily crack, chip, stain or fade. It's cleaned with a damp cloth—because dirt cannot stick. Boiling water, grease, spirits, dilute acids and heat up to 310°F. leave new Decorplast bright and colourful as the day it was made.

The whole new range, now in sheets 9′ x 4′ as well as 8′ x 4′, thickness $\frac{1}{16}$″, is *always available* in matt and gloss finishes—plus new wood veneers that really do look like wood! Send in the coupon below for facsimile Colour Chart and list of Distributors.

Decorplast LAMINATED PLASTIC

POST THIS COUPON TODAY

Reed PAPER GROUP

To Holoplast Ltd., 116, Victoria Street, London, S.W.1. Please send Decorplast facsimile Colour Chart to:—

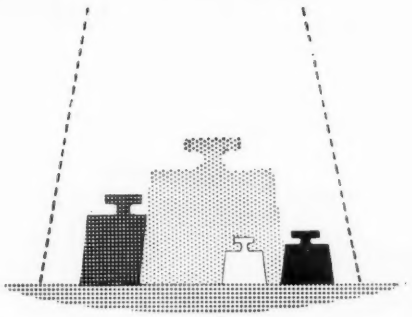
NAME .....

ADDRESS .....

.....

TYPE OF BUSINESS .....

Made by Holoplast Limited. Sales Office: 116 Victoria Street, London, S.W.1. Telephone: VICtoria 9354/7 and 9981



Because the correct constituents are accurately proportioned and intimately mixed-in during manufacture you get the perfect mortar material with

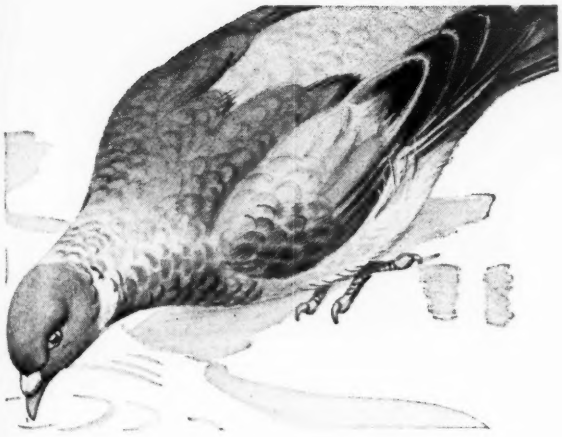
WALCRETE

which is made under rigid laboratory control to Blue Circle standards.
Only Walcrete, suitable sand and water are needed on the site.
Because of its high sand carrying capacity Walcrete produces a cheaper mortar for brickwork, rendering, internal plastering etc., with the following properties:—

Excellent plasticity and workability
Low shrinkage and moisture movement
Higher resistance to sulphates than conventional mortars
Excellent cohesiveness
Frost resistance. Good water retentivity

Write for further details and prices to:
THE CEMENT MARKETING COMPANY LIMITED
PORTLAND HOUSE, TOTHILL STREET, LONDON, S.W.1
G. & T. EARLE LIMITED, HULL
THE SOUTH WALES PORTLAND CEMENT & LIME COMPANY LTD. PENARTH, GLAM.

A BLUE CIRCLE PRODUCT



Our pigeon is 'joints-that-move'

A problematic 'pigeon' these constructional 'joints-that-move', but for all jointing requirements, Expandite Limited manufacture joint-fillers and sealing compounds to meet every specialised application.

SEELASTIK* — All-purpose flexible Sealing Compound for weatherproof seals where movement may occur.

MULSEAL* — Bitumen/Rubber latex weather-proofing emulsion. Forms a tough, rubbery membrane. Applied by brush or squeegee.

FLEXCELL*† — Non-extruding Joint Filler for expansion joints containing sugar cane fibre. 70% recovery after compression.

PLI-ASTIC* — Hot-poured Rubber-Bitumen Joint Sealing Compound. Strong adhesion to concrete. Excellent top-sealer for Flexcell.

AEROLASTIC* — Hot-poured Horizontal Joint Sealing Compound with high resistance to heat, jet blast and fuel spillage.

PLASTIJOINT* — Bituminous Putty for vertical joints in buildings and water retaining structures. Does not require accurately formed cavity.

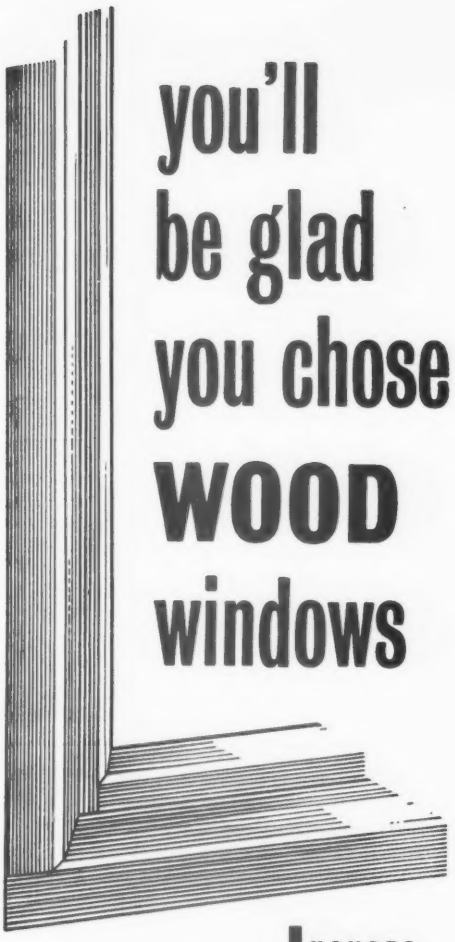
*REGISTERED TRADE MARKS. †SPECIALLY MANUFACTURED BY CELOTEX LTD.

Allied 'pigeons'—damp-prevention and weatherproofing as well as the manufacture of concrete additives, these too have been taken in hand by Expandite Limited. Wherever a joint needs filling or a gap needs sealing, specify EXPANDITE PRODUCTS.

EXPANDITE LIMITED

Chase Road, London, N.W.10. Tel: ELGar 4321 (10 lines)

ASSOCIATES AND DISTRIBUTORS THROUGHOUT THE WORLD



you'll be glad you chose WOOD windows

Wood windows are ideal in every way for . . .

HOUSES
FLATS
SCHOOLS
HOSPITALS
OFFICES
FACTORIES

Wood is functional, economical to install and maintain, and provides maximum flexibility in expression. Furthermore, wood windows reduce heat losses, sound transmission and condensation. Remember, too, with wood windows you are ensured a quick delivery.

A CASE IN POINT Wood windows have been used in the new Administrative Block at London Airport with a view to combining functional efficiency with the required style of contemporary design. For advice on wood windows suitable for all types of buildings, consult E.J.M.A. Write to the address below.

THE ENGLISH JOINERY MANUFACTURERS' ASSOCIATION (INCORPORATED)

(with which is associated the Scottish Joinery and Door Manufacturers' Association)

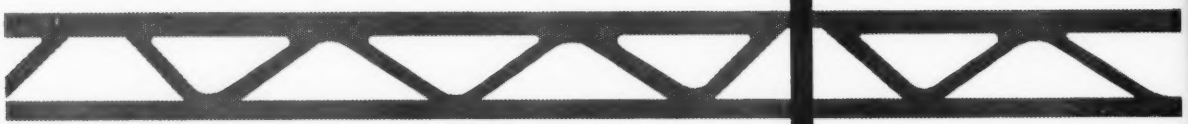
SACKVILLE HOUSE • 40 PICCADILLY • LONDON, W.1 • Tel: REGENT 4448/9

Printed in Great Britain by Unwin Brothers, Ltd., Woking and London
All communications regarding Advertisements in this Journal should be addressed to the Advertisement Manager, R.I.B.A., 66 Portland Place, London, W.1
Telephone: Langham 2271

JOHN LAING AND SON LIMITED ANNOUNCE

LAINGSPAN

FOR SCHOOL CONSTRUCTION



LAINGSPAN is a new, complete system of construction for the frame and external cladding of schools, and is equally suitable for hospitals, office blocks and similar buildings.

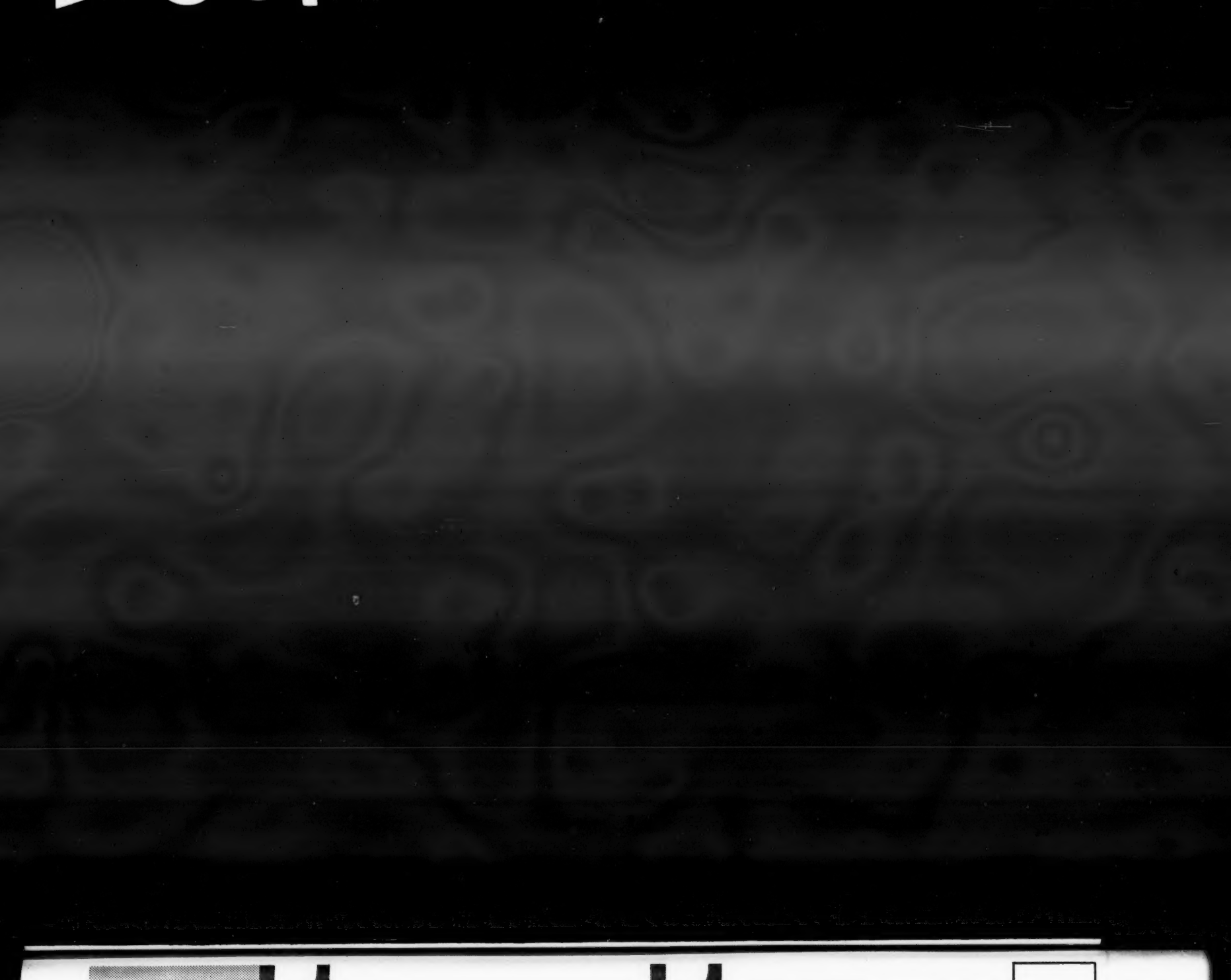
LAINGSPAN is based on the use of precast and prestressed modular components of high grade concrete, designed for easy handling and rapid assembly and erection on site.

LAINGSPAN offers substantial savings in overall construction time, and reduction in building costs.

LAINGSPAN combines the economic advantages of standardised prefabrication with scope for architectural initiative, through the flexibility of the modular components and the wide choice of cladding materials available.

LAINGSPAN

A booklet about Laingspan is available on request to John Laing and Son Limited London NW7



BUILDING RESEARCH STATION DIGEST 118

January 1959

REDUCING LABORATORY VIBRATIONS

SPRAY TAPS

VIBRATION control is an important functional requirement of laboratories for technical and scientific education and research. The first part of this Digest discusses the problem this raises for architects and planning authorities, and offers recommendations for design.

The second part of the Digest describes two types of spray tap and methods of installation.

Reducing Laboratory Vibrations

Many laboratory operations and a wide range of equipment in all types of laboratory are likely to be affected in varying degree by vibrations, either from external sources or from within the building itself. Galvanometers, extensometers, and electronic and optical equipment are particularly susceptible, and very accurate weighings may also be affected. It is not possible to state a generally acceptable level of vibration suitable for all work, since this depends on the nature of the work and on the degree of accuracy required. It is desirable however that the amplitude of vibration be kept to below 0.001 in., and perceptible vibration may require remedial action.

The solution to a particular problem will depend on requirements, and may differ according to whether a new building is being planned specifically for laboratory use or part of an existing building is to be modified for this purpose. The main points to consider, at the planning stage, are those of siting, isolation of machinery and apparatus, and structural treatment.

Siting

A new building, to be used solely for laboratory work, should be built as far as possible from any other buildings housing heavy machinery and from other known sources of vibration. The possibility of vibration from road and rail traffic should certainly be considered. Where part of an existing building is to be modified for laboratory use, it should be chosen so that it is subjected to minimum interference from existing sources of vibration, whether outside or within the premises. Vibration measurements over the whole available area will best indicate the most suitable location, but a useful guide is given by noting the positions where the surface of a small dish of mercury, placed on a floor or table, shows least disturbance.

As a general rule, the most sensitive apparatus should be housed on the ground floor, and should preferably be kept away from the middle of the room. Where traffic vibration is involved, a ground-floor site as far as possible from the road should be chosen. Direct contact with the walls of the building should be avoided as far as possible. The practice of mounting apparatus on brackets attached to the wall may however be satisfactory if the whole building is not being subjected to severe vibration, but the brackets should be as rigid as possible, to avoid amplification of any existing vibration.

Isolation of machinery and apparatus

The general principles of vibration isolation by elastic mounting were outlined in Digest No. 78 and are fully dealt with in the many textbooks available. The procedure is much the same whether a vibrating machine is to be isolated from its supporting structure or an instrument is to be isolated from vibration in the structure.

The selection of a suitable system for an anti-vibration mounting involves consideration of the frequency of vibration being produced, the amount of reduction required and the weight to be supported. This will often be a specialist's task. For good isolation, the value of the ratio of the frequency of troublesome vibration to the natural frequency of the mounting system (the "mounting frequency") should be made as great as possible. Thus for a ratio of 3, the vibration is reduced theoretically by over 85%, whereas if the ratio is increased to 10, the theoretical reduction is about 99%. In practice however the system will be rather less effective. The natural frequency of a mounting system is determined by the static deflection of the system, i.e. the compression of the springs under the weight supported. Although this applies primarily to vertical vibration isolation, the same procedure may be used for horizontal vibration if the system is imagined to be turned on its side.

Various mounting systems are commercially available, and the names of suppliers may be obtained from the Building Centre, Store Street, London, W.C.2. The systems include steel-spring supports using helical or leaf springs, rubber mountings including the rubber-in-shear type, and mats of materials such as cork, felt and rubber. A very wide range of rubber mountings is available both for the isolation of machinery and for the protection of apparatus, and many of them give mounting frequencies in the range 5-10 cycles per second. It is often possible to effect a cure by the use of a ready-made mounting, particularly for small pieces of apparatus and for light machinery, but where an unusually high degree of isolation or a very low mounting frequency is required it may be necessary to engage the services of a specialist to design a suitable system.

Where machinery vibration is to be reduced, attention should first be paid to the possibility of improving the dynamic balancing of the machinery itself. A slight alteration in running speed may also reduce the vibration.

Structural treatment

It is very difficult to isolate a complete building, but it is a comparatively simple matter to mount a floor on a low-frequency spring system, or to isolate a small room by special construction.

Spring-mounting a complete floor will provide protection from external vibration generally and from the effect of people walking about in nearby corridors, but the form of floating floor appropriate for sound insulation is of little value in reducing low-frequency vibration. The complete floor, or a particular area, should be mounted on some suitable support, and a specially devised system, usually involving steel springs, will often be required. It should be quite possible to obtain a mounting frequency of 4 cycles per second by this means, but if a very low frequency is required then the spring system would have to be of substantial depth. Frequencies of the order 2 cycles per second should be avoided as they introduce the possibility of resonance due to people walking about in the room. The floor slab should be as stiff as possible; hence this treatment should be more suitable for solid floors and concrete suspended floors. Direct contact with the walls should be avoided when treating a complete floor. A single spring-mounted slab should have no lateral contact with adjacent slabs. The spring system should be rigidly based, and some damping system may have to be incorporated if floor vibration due to impact is not to persist.

A small building, or a single room, may be isolated by constructing it in the form of a "box-within-a-box". This is virtually the same procedure that has been followed in the construction of acoustics laboratories but, again, isolation effective in dealing with audible frequencies may not be effective against low-frequency vibration. A room mounted on cork is likely to have a natural frequency not lower than 20 cycles per second, but a lower frequency would be possible if the inner "box" were

rested on steel springs, unit rubber mountings, or pads of suitable material. In any scheme of this kind, various technical difficulties would have to be overcome. Contact between inner and outer walls would have to be avoided, special door construction would be required, care would have to be taken about services, and some provision would have to be made for possible replacement of the mountings at some later stage. The latter precaution would be rather more necessary if pads of cork, rubber etc. were used instead of steel springs.

Other treatments, which may be effective in some cases against external vibration, are the provision of vibration isolating units under the floor beams at the wall bearings, and the provision of pads of isolating material under column footings. Both treatments are matters of specialist design.

Other action

Although the best solution to the problem of vibration is likely to be obtained by the methods already outlined, i.e. correct siting, isolation of machines, and mounting of apparatus, other action may help. The most useful additional precaution is the provision of isolated piers to prevent vibration reaching the apparatus from people walking or from plant operating in the same room. Many examples of this treatment may be found, particularly in the older laboratories, and the method is probably of greatest use when the laboratory is on a suspended timber floor at ground level.

A pillar of brick, stone, or concrete is constructed so as to pass through the floor into the foundations or basement of the building, and the apparatus stands on top of the pillar. Direct contact between the floor and the sides of the pier should be avoided by providing a gap, covered if necessary by flexible strip. The pier may be arranged so that it passes up through a working bench, so that the user of the apparatus may work more comfortably, but here again there must be no contact between pier and bench.

Although such piers may be very effective in cutting out local vibration, there is always the possibility that vibration originating in the basement will be transmitted up the pier into the apparatus. Such vibration can usually be eliminated by anti-vibration mountings placed directly under the apparatus; the practice of inserting some material such as cork into the pier itself is not recommended, since this usually results in a high-frequency system, and in some cases may make matters worse. A pier only a foot or so square in section may be quite suitable for a balance or a galvanometer; for bigger apparatus, a large block could be devised similarly. A modern development of the isolated pier is a special anti-vibration balance mounting which can be bolted directly to the floor of the room. A steel-spring system is used here, and special damping is provided. Such a mounting could deal with vibrations affecting balances used on upper floors.

Further methods of reducing vibration are to stiffen existing wood floors, or to replace them by concrete floors, to site related components of apparatus on a common base (thereby eliminating *differential* vibration), the stiffening of stands carrying instrument scales and the provision of swing doors or door checks. The latter may be particularly desirable to avoid door slamming, which might otherwise affect an instrument via the walls and floors.

Spray Taps

Studies on the water consumption for ablution in offices have shown that by replacing the normal two taps by a single spray tap a considerable economy in water consumption, both hot and cold, can be achieved. This leads to an economy also in fuel. Thus, in one large office building with a staff of about 1000 the total consumption of water for ablution was reduced by about one half by the use of spray taps. This effected a weekly saving of 9000 gallons of hot water and 2000 gallons of cold, despite the fact that washing was done in running water and no plugs were provided. The use of running water for washing is advocated by medical authorities and, as users generally were in favour, it seemed that advantages were gained on all sides. Two types are available, "spray mixing taps" and "spray

taps"; the names of suppliers may be obtained from the Building Centre.

Spray mixing taps

A spray mixing tap delivers water at a constant rate of flow from a single spray head with one hand control that enables the temperature of the spray to be varied from cold to hot. A satisfactory and economic rate of flow is three to four pints per minute. To fix this flow rate, having regard to varying water heads, the tap contains a suitable restricting device (either fixed or adjustable). The performance of the tap should be checked at the time of installation, with all taps on the suite turned on. The hot and cold water connections on the tap are each $\frac{1}{4}$ in. diameter, conveniently arranged for mounting into the tap hole of a British Standard B.S. 1188 lavatory basin. The present price of this type of tap ranges from about £4 to £5 10s. 0d.

The hot and cold water pressures must be equal at the tap. For this reason main-water connection to the cold supply is not possible. Even where the hot-water supply is fed from the common cold-water source, it is still desirable to check and if necessary to equalize pressures near the tap.

The hot-water supply to the tap should be connected to the hot-water system in such a way that hot water is quickly available to the tap. Circulating pipe systems to each suite of basins are therefore recommended for solid fuel or oil-fired systems. "Dead-leg" pipe connections longer than two or three feet result in delayed delivery of hot water and should be avoided.

With a small group of about three lavatory basins, a pressure-type electric storage heater gives a satisfactory supply. The heater, of say, two gallons nominal capacity with a 3 kW heating element and the thermostat set at about 120° F, should be mounted beneath the basins. For every additional three basins an additional heating unit will be required.

Spray taps

In some situations, for example in junior schools, temperature control of the water by the user is unnecessary. Then a spray tap with one connection to a supply of water at a fixed temperature of about 105° F is satisfactory. A fixed flow rate of three to four pints per minute will be sufficient. The price of this type of tap varies from £1 10s. 0d. to about £2. A supply of cold water to separate taps will have to be provided if necessary.

The hot-water supply for a group of taps of this type is best obtained from a small pressure-type electric storage heater mounted beneath the wash basin. For the low rates of flow required, thermostatic mixing valves served from a solid fuel or oil-fired source may not be satisfactory.

Digest No. 116: Roof Drainage—Corrigenda

Page 3—**Valley gutters,** paragraph 2, the second sentence should read: "Thus the method of calculating the quantity of water falling on the roof remains the same, except that the plan area of the double roof should be used instead of the actual sloping roof area".

Page 4—**Table 1b,** column 3, for "6.8" read "8.8".

(Prepared at the Building Research Station, Garston, Herts.)

Printed in Great Britain by Unwin Brothers Limited
and published by
HER MAJESTY'S STATIONERY OFFICE:
Single copies 4d. each
Annual subscription 6s., including postage

6017B Wt.32 Ps. 300709 K.332 12/58 Gp.1343 S.O. Code No. 72-22-1-18